CALIFORNIA REGIONAL WATER QUALITY CONTROL BOARD
CENTRAL VALLEY REGION

ORDER NO. R5-2005-0055

NPDES NO. CA0004057

WASTE DISCHARGE REQUIREMENTS FOR FORMICA CORPORATION SIERRA PLANT PLACER COUNTY

The California Regional Water Quality Control Board, Central Valley Region, (hereafter Regional Board) finds that:

1. Formica Corporation (hereafter Discharger), submitted a Report of Waste Discharge, dated 18 July 2002 and applied for a permit renewal to discharge waste under the National Pollutant Discharge Elimination System (NPDES) from its Sierra Plant facility. Additional information was submitted to the Regional Board by the Discharger to complete filing of the application on 7 April 2003. A new Report of Waste Discharge was submitted on 11 November 2004 and additional information on 28 February 2005.

2. The Discharger owns and operates a distribution and manufacturing facility that handles high-pressure decorative plastic laminate. The facility is in Section 9, T11N, R5E, MDB&M, as shown on Attachment A, a part of this Order. Approximately 0.6 mgd of noncontact cooling water is discharged via a drainage ditch into an unnamed tributary of Pleasant Grove Creek, and has resulted in the formation of a freshwater marsh at the point of discharge (here after emergent marsh). The unnamed tributary is tributary to Pleasant Grove Creek, Pleasant Grove Creek Canal, Natomas Cross Canal, and the Sacramento River, south of the confluence with the Feather River at latitude 38°N, 49', 20" and longitude 121°W, 18', 48". The unnamed tributary and Pleasant Grove Creek, both waters of the United States and the State, are ephemeral.

3. Press cooling water and press vacuum cooling water are detained in a 290,000 gallon earthen, unlined detention pond to provide some temperature equalization and particulate settling prior to discharge into a drainage ditch then the emergent marsh via both a subsurface culvert and elevation control outlet.

4. Print and translucent air conditioning cooling water, treater unwind brake cooling water and treater end rolls cooling water are discharged directly into the drainage ditch via a separate culvert upstream of the outlet where the press cooling waters enter the ditch and the emergent marsh.

5. The noncontact cooling water discharges mix onsite in the drainage ditch prior to entering the unnamed tributary and, ultimately, Pleasant Grove Creek approximately two miles downstream. The emergent marsh is principally on property owned by the Discharger.

6. The effluent discharge has an elevated pH, typically above 9.0. The elevated pH values are from the City of Roseville's water supply, not wastewater activities by the Discharger. The Discharger adds sulfuric acid, to balance the waste stream pH, prior to discharge into the emergent marsh. A pH limitation for the discharge into the emergent marsh has been established to protect aquatic life beneficial uses and an effluent limitation has been established based on the Basin Plan water quality objective.

7. Two chemical additives, CHEMTREAT CL-1467 and CHEMTREAT CL-450 (corrosion inhibitors, biocides or anti-scaling agents), are used in the cooling water. These chemicals were present during the characterization of the discharge. The addition of different chemicals to the wastestream, or cooling water, would constitute a change in the character of the wastestream and would require submittal of a Report of Waste Discharge with possible modification of this Order.

8. The Discharger has constructed a containment area for chemical spill prevention that protects against discharge to surface waters in the event of any spillage of phenolic resin or isopropyl alcohol when the storage tanks for these chemicals are being filled. Any wastewater or residue that accumulates in this containment area is disposed of as hazardous waste. Alcohol, phenolic resin, and melamine resin also are stored in aboveground tanks with concrete spill catchment basins.

9. On 11 November 2004, the Discharger submitted the revised Report of Waste Discharge indicating that Formica plans to cease the discharge from its plant within the next two years as it implements a closed loop cooling system that will eliminate the need for any discharge to the surface waters. However, it is possible that regulatory requirements or unexpected equipment issues may occur that prevent this milestone from being met. Formica requests a two-year compliance schedule for compliance with permit limitations to allow for cessation of the discharge. If regulatory requirements or unexpected equipment issues require maintenance of the discharge beyond two years, Formica requests that an additional three years be added to the compliance schedule to allow time to meet regulatory requirements or resolve unexpected equipment issues. In such circumstances, the current discharge shall be allowed to continue for an additional three years, but in no case beyond 29 April 2010, so long as Formica submits a workplan to the Regional Board by 29 April 2007 that proposes additional measures that will address potential impacts of the discharge and, once approved, Formica implements that workplan promptly thereafter. In addition to an assessment of overall compliance, the workplan will specifically address achieving a discharge temperature that is protective of the cold-water beneficial use until the discharge can be eliminated. Compliance time schedules included in this Order are based on the Discharger's request.

10. Approximately 0.3 mgd of sanitary and industrial wastewater is discharged to the City of Roseville's Regional Wastewater Treatment Plant. The industrial wastewater consists of:

    a. Boiler blowdown.
    b. Air compressor cooling water
    c. Oil water separator water

11. Monthly effluent monitoring data were submitted by the Discharger as required by the previous Order. Data from 1998-2002 were examined and the detected values of constituents are summarized as follows:

Monthly Average Flow: 0.60 million gallons per day (mgd)
Average Daily Flow: 1.0 mgd

Constituent	Units	Average[1]	High	Low[1]	Percent Non-Detect[2]
COD	mg/L lbs/day	7.98 27.3	25 93.9	6 28.0	54
TSS	mg/L lbs/day	3.7 12.9	65 257	0.05 0.22	13
pH	standard units		8.5	6.0	
Temperature	°F	78.9	100	48	
Electrical Conductivity	µmhos/cm	66.8	422.7	40.0	
Dichlorobromomethane	µg/L		1.2		
Bis(2-ethylhexyl)phthalate	µg/L		9.0		
Aluminum	µg/L		100[3]		
	µg/L		28[4]		
Iron	µg/L		140		
Chloroform	µg/L		16		
Naphthalene	µg/L		4.5		
Manganese	µg/L		74		

1 Based only on detected values.
2 Percent non-detect 1998-2002
3 Measured as total recoverable concentration
4 Measured as acid soluble concentration

12. The State Water Resources Control Board (SWRCB) adopted Order No. 97-03-DWQ (General Permit No. CAS000001) specifying waste discharge requirements for discharges of storm water associated with industrial activities, excluding construction activities, and requiring submittal of a Notice of Intent (NOI) by industries to be covered under the permit. The Discharger submitted an NOI and its storm water discharges are covered by the General Permit (WDID# 5S31I001546).

RECEIVING WATER BENEFICIAL USES

13. The Regional Board adopted a *Water Quality Control Plan for the Sacramento River and San Joaquin River Basins, Fourth Edition* (hereafter Basin Plan). The Basin Plan designates beneficial uses, establishes water quality objectives, and contains implementation programs and policies to achieve water quality objectives for all waters of the Basin. These requirements implement the Basin Plan.

14. The Basin Plan at page II-2.00 states: "*Existing and potential beneficial uses which currently apply to surface waters of the basins are presented in Figure II-1 and Table II-1. The beneficial uses of any specifically identified water body generally apply to its tributary streams*." Furthermore, the Regional Board generally is required to apply the beneficial uses of municipal and domestic supply to surface waters based on State Board Resolution No. 88-63, which was incorporated in the Basin Plan pursuant to Regional Board Resolution 89-056.

The Basin Plan does not specifically identify beneficial uses for the unnamed tributary to Pleasant Grove Creek, Pleasant Grove Creek, Pleasant Grove Creek Canal, and Natomas Cross Canal, but does identify present and potential uses for the Sacramento River. The unnamed tributary to Pleasant Grove Creek, Pleasant Grove Creek, Pleasant Grove Creek Canal and the Natomas Cross Canal, are tributary to the Sacramento River. The unnamed tributary to Pleasant Grove Creek and Pleasant Grove Creek are in the Pleasant Grove Hydrologic Subarea (519.22) of the Valley-American Hydrologic Unit (519.00), in the Sacramento River Hydrologic Basin. The unnamed tributary to Pleasant Grove Creek and Pleasant Grove Creek are tributary to a section of the Sacramento River between the Colusa Basin Drain and the "I" Street Bridge in Sacramento (Colusa Basin Drain Hydrologic Unit 520.00). The Basin Plan, on page IV-24, prohibits the direct discharge of municipal and industrial wastewater into the Sacramento River from the confluence with the Feather River to the Freeport Bridge. When sufficient water is present, the discharged effluent flows through western Placer County and Sutter County where it commingles with water in Pleasant Grove Creek Canal and Natomas Cross Canal before entering the Sacramento River; thus, the discharge is not directly to the Sacramento River.

The Regional Board finds that the beneficial uses identified in the Basin Plan for the Sacramento River, from the Colusa Basin Drain to the "I" Street Bridge, are applicable to the unnamed tributary of Pleasant Grove Creek and Pleasant Grove Creek. The Regional Board also finds that the emergent marsh contains aquatic habitat, and the unnamed tributary to Pleasant Grove Creek qualifies as waters of the State and have the same beneficial uses as the unnamed tributary to Pleasant Grove Creek, and hence the Sacramento River. These beneficial uses are municipal and domestic supply, agricultural irrigation, water contact recreation, non-contact water recreation, warm freshwater aquatic habitat, warm fish migration habitat, and warm spawning habitat, cold freshwater aquatic habitat, cold fish migration habitat, and cold spawning habitat, wildlife habitat, and navigation. The Basin Plan on page II-1.00 states: "*Protection and enhancement of existing and potential beneficial uses are primary goals of water quality planning…*" and with respect to disposal of wastewaters states that "*…disposal of wastewaters is [not] a prohibited use of waters of the State; it is merely a use which cannot be satisfied to the detriment of beneficial uses.*"

In reviewing whether the existing and/or potential uses of the Sacramento River apply to the unnamed tributary to Pleasant Grove Creek and Pleasant Grove Creek, the Regional Board has considered the following facts:

a. *Domestic Supply and Agricultural Supply*

The Regional Board is required to apply the beneficial uses of municipal and domestic supply to the Sacramento River based on State Board Resolution No. 88-63 which was incorporated in the Basin Plan pursuant to Regional Board Resolution 89-056. In addition, the SWRCB has issued water rights to existing water users along the Sacramento River, the unnamed tributary and Pleasant Grove Creek downstream of the discharge for domestic and irrigation uses. Since the unnamed tributary and Pleasant Grove Creek are ephemeral streams, they also likely provide groundwater recharge during periods of low flow. The groundwater is a source of drinking water. In addition to the existing water uses, growth in the area, downstream of the discharge is expected to continue, which presents a potential for increased domestic and agricultural uses of the water in receiving stream.

b. *Water Contact and Noncontact Recreation and Esthetic Enjoyment*

The Regional Board finds that the discharge flows through residential areas, and there is ready public access to the unnamed tributary of Pleasant Grove Creek, Pleasant Grove Creek, Pleasant Grove Creek Canal, Natomas Cross Canal, and the Sacramento River. Exclusion of the public is unrealistic and contact recreational activities currently exist along the unnamed tributary of Pleasant Grove Creek, Pleasant Grove Creek, Pleasant Grove Creek Canal, Natomas Cross Canal, and the Sacramento River and these uses are likely to increase as the population in the area grows.

c. *Preservation and Enhancement of Fish, Wildlife and Other Aquatic Resources*

The California Department of Fish and Game (DFG) has verified that the fish species present in the Sacramento River and downstream waters are consistent with both cold- and warm-water fisheries and that there is a potential for anadromous fish migration, thus necessitating a cold-water designation. The Basin Plan (Table II-1) designates, the Sacramento River as being both a cold and warm freshwater habitat. Therefore, pursuant to the Basin Plan, the cold designation applies to the unnamed tributary of Pleasant Grove Creek, Pleasant Grove Creek, Pleasant Grove Creek Canal, Natomas Cross Canal, and the Sacramento River. The cold-water habitat designation necessitates that the in-stream dissolved oxygen concentration be maintained at, or above, 7.0 mg/L. This approach recognizes that, if the naturally occurring in-stream dissolved oxygen concentration is below 7.0 mg/L, the Discharger is not required to improve the naturally occurring level. As stated in the above Findings, currently the unnamed tributary of Pleasant Grove Creek and Pleasant Grove Creek are ephemeral streams. The City of Roseville has constructed a new wastewater treatment plant that currently discharges a significant volume of effluent to Pleasant Grove Creek. The City's wastewater discharge will change the character of the

receiving stream where currently there may be periods where there is not hydraulic continuity with downstream waters. The significantly increased flow rate will increase the likelihood of coldwater fish migration into the Natomas Cross Canal, Pleasant Grove Creek Canal, Pleasant Grove Creek, and the unnamed tributary to Pleasant Grove Creek. Regional Board staff has observed large numbers of fish within the emergent marsh.

Upon review of the flow conditions, habitat values, and beneficial uses of the Sacramento River, and the facts described above, the Regional Board finds that the beneficial uses identified in the Basin Plan for the Sacramento River are applicable to the unnamed tributary to Pleasant Grove Creek, Pleasant Grove Creek, and any associated marsh.

15. The Regional Board finds, based on available information, that the unnamed tributary to Pleasant Grove Creek and Pleasant Grove Creek**,** absent the discharge, are ephemeral streams. The ephemeral nature of the unnamed tributary to Pleasant Grove Creek and Pleasant Grove Creek means that the designated beneficial uses must be protected, but that no credit for receiving water dilution is available. Although the discharge, at times, maintains the aquatic habitat, constituents may not be discharged that may cause harm to aquatic life. At other times, natural flows within the unnamed tributary to Pleasant Grove Creek and Pleasant Grove Creek help support the aquatic life. Both conditions may exist within a short time span, where the unnamed tributary to Pleasant Grove Creek and Pleasant Grove Creek would be dry without the discharge and periods when sufficient background flows provide hydraulic continuity with the Sacramento River**.** Dry conditions occur primarily in the summer months, but may also occur throughout the year, particularly in low rainfall years. The lack of dilution results in more stringent effluent limitations to protect contact recreational uses, drinking water standards, agricultural water quality goals and aquatic life. Dilution may occur during and immediately following high rainfall events.

EFFLUENT LIMITATIONS / REASONABLE POTENTIAL ANALYSIS

16. The U.S. Environmental Protection Agency (U.S. EPA) adopted the *National Toxics Rule* (NTR) on 5 February 1993 and the *California Toxics Rule* (CTR) on 18 May 2000. When combined with the beneficial use designations in the Basin Plan, these Rules contain water quality standards applicable to this discharge. On 2 March 2000, the SWRCB adopted the *Policy for Implementation of Toxics Standards for Inland Surface Waters, Enclosed Bays, and Estuaries of California* (known as the State Implementation Policy or SIP), which contains policy for implementation of the NTR and CTR.

17. The federal Clean Water Act (CWA) mandates the implementation of effluent limitations that are as stringent as necessary to meet water quality standards established pursuant to state or federal law. (33 U.S.C., § 1311(b)(1)(C); 40 C.F.R., § 122.44(d)(1).) NPDES permits must incorporate discharge limits necessary to ensure that water quality standards are met. This requirement applies to narrative criteria as well as to criteria specifying maximum amounts of particular pollutants. Pursuant to Federal Regulations, 40 C.F.R. section 122.44(d)(1)(i), NPDES permits must contain limits that control all pollutants that "*are or may be discharged at a level which will cause, have the reasonable potential to cause, or contribute to an*

excursion above any state water quality standard, including state narrative criteria for water quality." Federal Regulations, 40 CFR, Section 122.44(d)(1)(vi), further provide that "[w]here a state has not established a water quality criterion for a specific chemical pollutant that is present in an effluent at a concentration that causes, has the reasonable potential to cause, or contributes to an excursion above a narrative criterion within an applicable State water quality standard, the permitting authority must establish effluent limits."

18. The Regional Board's Basin Plan, page IV-17.00, contains an implementation policy ("Policy for Application of Water Quality Objectives") that specifies that the Regional Board "*will, on a case-by-case basis, adopt numerical limitations in orders which will implement the narrative objectives*." This Policy complies with 40 CFR 122.44(d)(1). With respect to narrative objectives, the Regional Board must establish effluent limitations using one or more of three specified sources, including EPA's published water quality criteria, a proposed state criterion (i.e., water quality objective), or an explicit state policy interpreting its narrative water quality criteria (i.e., the Regional Board's "Policy for Application of Water Quality Objectives")(40 C.F.R. 122.44(d)(1) (vi) (A), (B) or (C)). The Basin Plan contains a narrative objective requiring that: "All waters shall be maintained free of toxic substances in concentrations that produce detrimental physiological responses in human, plant, animal, or aquatic life". The Basin Plan requires the application of the most stringent objective necessary to ensure that surface water and groundwater do not contain chemical constituents, toxic substances, radionuclides, or taste and odor producing substances that adversely affect beneficial uses. The beneficial uses include municipal and domestic supply, agricultural irrigation supply, water contact and non-contact recreation and aquatic habitat and migration. The Basin Plan states that material and relevant information, including numeric criteria, and recommendations from other agencies and scientific literature will be utilized in evaluating compliance with the narrative toxicity objective. The Basin Plan also limits chemical constituents in concentrations that adversely affect surface water beneficial uses. For waters designated as municipal, the Basin Plan specifies that, at a minimum, waters shall not contain concentrations of constituents that exceed Maximum Contaminant Levels (MCLs) of CCR Title 22. The Basin Plan further states that; to protect all beneficial uses the Regional Board may apply limits more stringent than MCLs. When a reasonable potential exists for exceeding a narrative objective, Federal Regulations mandate numerical effluent limitations and the Basin Plan narrative criteria clearly establish a procedure for translating the narrative objectives into numerical effluent limitations.

19. Federal regulations at 40 CFR 122.44(d) require effluent limitations for all pollutants that are or may be discharged at a level that will cause, have the reasonable potential to cause, or contribute to an in-stream excursion above a narrative or numeric water quality standard. Based on information submitted as part of the application, in studies, and as directed by monitoring and reporting programs the Regional Board finds that the discharge has a reasonable potential to cause or contribute to an in-stream excursion above a water quality standard for Chemical Oxygen Demand, Total Suspended Solids, pH, bis(2-ethylhexyl)phthalate, dichlorobromomethane, aluminum, iron, chlorine, total trihalomethanes, persistent chlorinated hydrocarbon pesticides, naphthalene, and manganese. Effluent limitations for these constituents are included in this Order.

20. On 10 September 2001, the Executive Officer issued a letter, pursuant to California Water Code, Section 13267, requiring the Discharger to prepare a technical report assessing effluent and receiving water quality. This letter required sampling for NTR, CTR, and additional constituents to determine the water quality impacts of the discharge. The Discharger provided receiving water and effluent monitoring data for three quarters in 2002 (February, May and November).

21. Section 1.3 of the SIP requires that the Regional Board impose water quality-based effluent limitations for a priority pollutant if (1) the maximum effluent concentration (MEC) is greater than the most stringent CTR criterion or applicable site-specific Basin Plan objective, or (2) the
ambient background concentration is greater than the CTR criterion or applicable site-specific Basin Plan objective, or (3) other information is available to determine that a water quality-based effluent limitation is necessary to protect beneficial uses.

TECHNOLOGY-BASED EFFLUENT LIMITATIONS

22. **Chemical Oxygen Demand**: Order No. 97-112 established effluent limitations for chemical oxygen demand (COD) of 10 mg/L or 83 lbs/day (monthly average) and 35 mg/L or 292 lbs/day (daily maximum), which were technology-based limits developed using best professional judgment. These limitations are equivalent to the level of effluent quality expected by domestic tertiary treatment and also will be protective of beneficial uses of the receiving water, particularly in maintaining dissolved oxygen levels. An excess of chemical oxygen demanding substances can cause depletion of the instream dissolved oxygen levels thereby causing harm to aquatic life. To ensure attainment of beneficial uses, this Order carries over the COD Effluent Limitations established by the previous Order.

23. **Total Suspended Solids (TSS)**: Order No. 97-112 established effluent limitations for TSS of 10 mg/L or 83 lbs/day (monthly average) and 15 mg/L or 125 lbs/day (daily maximum), which were technology-based limits developed using best professional judgment. These limitations are equivalent to the level of effluent quality expected by domestic tertiary treatment and also will be protective of the narrative water quality objective for suspended material from the Basin Plan. In order to ensure attainment of beneficial uses, this Order carries over the TSS Effluent Limitations established by the previous Order.

REASONABLE POTENTIAL ANALYSIS FOR EFFLUENT LIMITATIONS – NON-CTR CONSTITUENTS

24. **Aluminum:** Aluminum was detected at a maximum concentration of 100 µg/L in one of three effluent samples (measured as total recoverable concentrations) and 28 µg/L (measured as acid-soluble concentration). Using the methodology in the USEPA's Technical Support Document (TSD) for Water Quality-Based Toxics Control, the projected maximum effluent concentration (MEC) of aluminum is calculated at 560 µg/L (total recoverable concentration) and 209 µg/L (acid-soluble concentration). Aluminum exists as aluminum silicate in suspended clay particles, which U.S. EPA acknowledges might be less toxic than other forms

of aluminum. Correspondence with U.S. EPA indicates that the criterion is not intended to apply to aluminum silicate. Therefore, a monitoring method that excludes aluminum silicate is likely to be more appropriate. The use of acid-soluble analysis for compliance with the aluminum criterion appears to satisfy U.S. EPA. USEPA established recommended ambient water quality criteria for the protection of freshwater aquatic life at 87 µg/L (four-day average) and 750 µg/L (one-hour average). The California DHS has established a secondary MCL for aluminum of 200 µg/L, with the U.S. EPA having a secondary MCL of 50-200 µg/L. The projected MEC of aluminum exceeds the most stringent freshwater aquatic life criterion and the secondary MCLs established by the State and USEPA. Effluent Limitations are required for aluminum and are included in this Order based on the Basin Plan narrative toxicity objective utilizing the EPA Recommended Ambient Water Quality Criteria. Maximum daily and average monthly concentration-based Effluent Limitations for aluminum are calculated at 750 µg/L and 71 µg/L, based on the U.S. EPA Ambient Water Quality criteria for protection of aquatic life. The corresponding mass-based effluent limitations are 6.3 lbs/day and 0.59 lbs/day.

25. **Chlorine:** U.S. EPA has developed Recommended Ambient Water Quality criteria for the protection of freshwater aquatic life. The recommended acute (1-hour average) and chronic (4-day average) aquatic life criteria for chlorine are 19 µg/L and 11 µg/L, respectively. Water chemistry analyses conducted in conjunction with chronic toxicity testing in 2000, 2001, and 2002 have indicated total chlorine concentrations in samples of effluent ranging from below detection to 0.3 mg/L (300 µg/L). All but one sample exceeded both the acute and chronic criteria. The chlorine in bioassay samples has had a significant time to degrade while the sample was transported to the laboratory without measures designed to preserve chlorine. Chlorine volatilizes quickly and U.S. EPA recommends that samples be analyzed immediately with a minimal holding time. The actual effluent chlorine concentration was reasonably higher than the level detected at the off-site laboratory. The total residual chlorine discharged from the facility has the reasonable potential to cause or contribute to an in-stream excursion above the Basin Plan narrative toxicity objective. Based on this information, this Order includes effluent limitations for total residual chlorine of 0.01 mg/L as a 4-day average and 0.02 mg/L as a 1-hour average.

    Chlorine limitations shall become effective by 1 August 2005. Additionally, all but one of the data points exceeded the effluent limitation for chlorine, which indicates the potential for continuous violation of the effluent limit. To insure compliance, continuous monitoring for chlorine shall be provided.

26. **Iron:** Iron was detected in each of the five effluent samples at a maximum concentration of 140 µg/L. Using the TSD reasonable potential analysis procedure, the projected MEC of iron is calculated at 588 µg/L. The California DHS and USEPA secondary MCL for iron is 300 µg/L. The projected MEC of iron exceeds the secondary MCL of 300 µg/L; therefore, there is a reasonable potential that the discharge will cause or contribute to an excursion of the Basin Plan chemical constituents objective for iron. This Order contains Monthly Average Effluent Limitations for iron of 300 µg/L and 2.5 lbs/day.

27. **Naphthalene:** Analytical laboratory results submitted by the Discharger indicate that naphthalene was detected in 1 of 3 effluent samples. The maximum detected effluent concentration of naphthalene was reported at 4.5 µg/l. Naphthalene is included in the CTR. However, no CTR criteria for naphthalene have yet been established. Therefore, the reasonable potential analysis for non-CTR constituents is applied to naphthalene to determine whether naphthalene causes or has a reasonable potential to cause an exceedance of a water quality criterion or objective. U.S.EPA Integrated Risk Information System (IRIS) includes a reference dose as a drinking water level of 14 µg/l for naphthalene. Using the TSD reasonable potential analysis, the projected MEC of naphthalene is calculated at 25 µg/l. The projected MEC of naphthalene exceeds the U.S. EPA IRIS reference dose. Because beneficial uses of the receiving waters include municipal and domestic supply, the discharge from the Sierra Plant has a reasonable potential to cause an exceedance of the Basin Plan narrative toxicity objective and the U.S. EPA IRIS reference dose as a drinking water level for naphthalene. To protect the municipal and domestic water supply beneficial use, this Order includes a monthly average concentration-based Effluent Limitation for naphthalene based on the Basin Plan narrative toxicity objective and the U.S.EPA IRIS reference dose of 14 µg/l.

28. **Manganese:** Analytical laboratory results submitted by the Discharger indicate that manganese was detected in 1 of 3 effluent samples. The maximum detected effluent concentration of manganese was reported at 74 µg/l. U.S. EPA and the Department of Health Service established a Secondary MCL of 50 µg/l for manganese. Using the TSD reasonable potential analysis, the projected MEC of manganese is calculated at 414 µg/l. The maximum detected effluent concentration of manganese exceeds the Secondary MCL. To protect the municipal and domestic water supply beneficial use, this Order includes a monthly average concentration-based Effluent Limitation for manganese based on the Basin Plan chemical constituents objective at the Secondary MCL of 50 µg/l.

29. **Persistent Chlorinated Hydrocarbon Pesticides:** Analytical laboratory results submitted by the Discharger indicate that 2,4-D and dalapon have been detected in the effluent. 2,4-D was detected at an estimated concentration (reported as "J Flag") of 0.26 µg/l. The Method Detection Limit (MDL) and the Reporting Limit (RL) for 2,4-D were reported at 0.098 µg/l and 9.5 µg/l, respectively. Dalapon was detected at an estimated concentration (reported as "J Flag") of 17 µg/l. The MDL and the RL for dalapon were reported at 4.3 µg/l and 190 µg/l, respectively.

    The Basin Plan includes a water quality objective for pesticides on page III-6.0, which states: "*No individual pesticide or combination of pesticides shall be present in concentrations that adversely affect beneficial uses*" and that " *Total identifiable persistent chlorinated hydrocarbon pesticides shall not be present in the water column at concentrations detectable within the accuracy of analytical methods approved by the Environmental Protection Agency or the Executive Officer*". California DHS established a Primary MCL of 70 µg/l and 200 µg/l for 2,4-D and dalapon, respectively. The Basin Plan objective is more restrictive than the drinking water quality standards for persistent chlorinated hydrocarbon pesticides. Therefore, the Basin Plan objective shall be used to establish effluent limitation. The presence of 2,4-D and dalapon in the effluent indicates that the discharge from the Sierra Plant has a reasonable

potential to cause or contribute to an exceedance of Basin Plan objectives for persistent chlorinated hydrocarbon pesticides. This Order includes an Effluent Limitation for persistent chlorinated hydrocarbon pesticides based on the Basin Plan objective.

30. **Total Trihalomethanes and Chloroform:** Chloroform was detected in two of the three effluent samples at a maximum concentration of 16 µg/L. Chloroform is included in the CTR. However, no CTR criteria for chloroform have yet been established. Therefore, the reasonable potential analysis for non-CTR constituents is applied to chloroform to determine whether chloroform causes or has a reasonable potential to cause an exceedance of a water quality criterion or objective. Using the TSD reasonable potential analysis, the projected MEC of chloroform is calculated at 90 µg/l.

The Cal/EPA Office of Environmental Health Hazard Assessment (OEHHA) has published the Toxicity Criteria Database, which contains cancer potency factors for chemicals, including chloroform, that have been used as a basis for regulatory actions by the boards, departments and offices within Cal/EPA. The OEHHA cancer potency value for oral exposure to chloroform is 0.031 milligrams per kilogram body weight per day (mg/kg-day). By applying standard toxicologic assumptions used by OEHHA and U.S. EPA in evaluating health risks via drinking water exposure of 70 kg body weight and 2 liters per day water consumption, this cancer potency factor is equivalent to a concentration in drinking water of 1.1 ug/L (ppb) at the one-in-a-million cancer risk level. This risk level is consistent with that used by the DHS to set *de minimus* risks from involuntary exposure to carcinogens in drinking water in developing MCLs and Action Levels and by OEHHA to set negligible cancer risks in developing Public Health Goals for drinking water. The one-in-a-million cancer risk level is also mandated by U.S.EPA in applying human health protective criteria contained in the NTR and the CTR to priority toxic pollutants in California surface waters. Since no drinking water intakes are likely to exist where the ingestion of water is equivalent to the level used in development of the cancer risk assessment downstream of the discharge from the Sierra Plant; therefore, setting a chloroform effluent limitation based on a cancer risk analysis is not appropriate. Although application of the cancer risk criteria is inappropriate, protection of the municipal water supply is necessary and appropriate. The Primary MCL for total trihalomethanes, the sum of bromoform, bromodichloromethane, chloroform, and dibromochloromethane, is 80 µg/l. The projected MEC of chloroform exceeds the Primary MCL. It indicates that the discharge from the Sierra Plant does have a reasonable potential to cause an in-stream excursion above the water quality objective for municipal uses. Therefore, an Effluent Limitation for total trihalomethanes is included in this Order and is based on the Basin Plan objective for municipal use. If U.S. EPA or the State Board develops a water quality objective for chloroform and/or total trihalomethanes, this Order may be reopened and a new Effluent Limitation established.

31. **pH**: In accordance with Basin Plan requirements, the previous Order established a discharge pH range of not less than 6.5 or greater than 8.5. Effluent monitoring data from 1998-2002 demonstrate that the pH of the discharge has ranged from 6.0 to 8.5 standard pH units with a high value of 8.50 (March 2002) and one value lower than the lower limit of 6.0 (5.95 in October 2002). The facility process water is discharged into an unnamed tributary of Pleasant

Creek and has resulted in the formation of a freshwater marsh at the point of discharge. At times, the discharge is the only flow in the unnamed tributary to Pleasant Grove Creek and Pleasant Grove Creek. To insure that the discharge from this facility is not a detriment to the aquatic life in the emergent marsh, influent into the emergent marsh shall not have a pH less than 6.5 or greater than 8.5.

32. **Temperature**: Order No. 97-112 contained a receiving water limitation that required the 30-day average ambient water temperature not increase by more than 5°F. This limitation was exceeded two times from 1998-2002 (July and August 2001) based on monitoring at R-1 and R-2. R-1 and R-2 are on Pleasant Grove Creek, nearly two miles downstream of the discharge point. Furthermore, there was high variation in the effluent temperature range during the permit term (48° to 100° F), which potentially could have adverse effects aquatic life in the emergent marsh, the unnamed tributary, and downstream waters. These effluent temperature values were measured at the point of discharge into the emergent marsh. Warm-water fish species, specifically bass and blue gill, have been identified at this point. An aquatic organism survey and assessment of the emergent marsh, the unnamed tributary to Pleasant Grove Creek, or downstream waters has not been conducted to determine the presence of warm and cold-water species. The unnamed tributary to Pleasant Grove Creek and Pleasant Grove Creek currently are ephemeral streams. The discharge from the City of Roseville's new Pleasant Grove Creek Wastewater Treatment Plant discharge into Pleasant Grove Creek will change the character of the receiving stream and increase the likelihood of cold-water fish migration. Similar Creeks in the area, such as Dry Creek and Auburn Ravine, are known to support cold-water fish species. Consultation with the California DFG regarding the presence or absence of cold-water fish species in Pleasant Grove Creek has been unproductive to date. NPDES permits for the nearby City of Roseville's Dry Creek Wastewater Treatment Plant and for the City of Lincoln Wastewater Treatment Plant have site specific temperature limitations to protect cold-water fish species of 60^{o} F (daily average), 62^{o} F (daily maximum) and 58^{o} F (monthly average), 64^{o} F (any time from 1 October through 31 May), respectively.

The receiving stream at the point of discharge is the headwaters for the unnamed tributary to Pleasant Grove Creek. An upstream sampling point is not available to determine the thermal impacts of the discharge. The discharge flows through open areas, prior to entering downstream waters, and the thermal impacts from any discharges entering the drainage course could mask actual impacts of the discharge on downstream waters. The thermal impacts of the discharge have already been assessed and the proposal to eliminate the discharge is largely based on resolving the elevated temperature issues.

33. **Toxicity:** The Basin Plan states that "*All waters shall be maintained free of toxic substances in concentrations that produce detrimental physiological responses in human, plant, animal, or aquatic life. This objective applies regardless of whether the toxicity is caused by a single substance or the interactive effect of multiple substances….The survival of aquatic life in surface waters subjected to a waste discharge or other controllable water quality factors shall not be less than that for the same water body in areas unaffected by the waste discharge….*" The Basin Plan requires that "*as a minimum, compliance with this objective…shall be evaluated with a 96-hour bioassay*." This Order requires both acute and chronic toxicity

monitoring to evaluate compliance with this water quality objective. The Basin Plan also states: "…*effluent limits based upon acute biotoxicity tests of effluents will be prescribed where appropriate;*…" Effluent limitations for acute toxicity are included in this Order.

The results of chronic whole effluent toxicity testing from three samples collected in November 2000, December 2001, and November 2002 and submitted to the Regional Board by the Discharger indicate the potential for adverse effects at various effluent concentrations. For the November 2000 sample *Selanastrum capricornutum* growth was adversely affected at the 12.5% concentration of effluent when compared to control water from Pleasant Grove creek. Statistically significant effects on *Pimephales promelas* growth were observed at the 100% effluent concentration vs. creek water.

For the December 2001 sample, a statistically significant effect on *Selanastrum capricornutum* growth was observed at the 50% concentration of effluent when compared to the creek water. Statistically significant effects on *Pimephales promelas* growth were observed at the 75% effluent concentration vs. creek water.

For the November 2002 sample, statistically significant effects on *Ceriodaphnia dubia* reproduction were observed at the 100% effluent concentration when compared to the creek water. *Selanastrum capricornutum* growth was adversely affected at the 75% concentration of effluent when compared to the creek water.

With a low available dilution, it appears that discharges from the facility may cause adverse effects on aquatic organisms. Accordingly, this Order increases the frequency of chronic toxicity monitoring to quarterly. If a trend of toxicity is observed, the Discharger shall be required to develop and conduct a toxicity identification evaluation (TIE) and toxicity reduction evaluation (TRE) plan that includes a schedule for plan implementation.

34. **Receiving Water Limitations:** are based upon water quality objectives contained in the Basin Plan. As such, they are a required part of this permit. The Receiving Water Limitations of the Basin Plan (dissolved oxygen, temperature, turbidity, and pH) require that numeric constrains be maintained. Specifically, the numeric constrains require that minimum concentration of dissolved oxygen be maintained and that receiving water quality (temperature, turbidity, pH) not change by specified amounts due to impacts attributable to the discharge. The discharge has resulted in the presence of a freshwater emergent marsh, and there is significant biological activity that naturally occurs within marsh-type ecosystems that affects ambient conditions associated with dissolved oxygen, turbidity, pH, and temperature. There is no record available of the ambient receiving water conditions that would be present in the absence of the discharge. An upstream sampling point is not available to determine the thermal, pH shift and turbidity impacts of the discharge. The discharge flows through open areas, prior to entering downstream waters, and the thermal, pH and turbidity impacts from any other discharges entering the drainage course or from other influences (such as the anticipated Sunset-Athens connector road construction) could mask actual impacts of the discharge on downstream waters. Compliance with Receiving Water Limitations for temperature, pH and turbidity cannot be determined by traditional upstream and downstream sampling. A pH

Effluent Limitation has been assigned and should also be protective of the receiving water. The thermal impacts of the discharge have already been assessed and the proposal to eliminate the discharge is largely based on resolving the elevated temperature issues. The permit contains Effluent Limitations for total suspended solids (TSS) of 10 mg/l as a monthly average and 15 mg/l as a daily maximum. While not a direct measurement of turbidity, the TSS Effluent Limitation offers a measure of surety that the turbidity will not be excessive. This permit requires that the Discharger prepare monthly reports (Discharger Self Monitoring Reports) that in part assess compliance with the Receiving Water Limitations. In the event the discharge is not eliminated by 29 April 2007, the Discharger shall be required to submit a workplan that proposes additional measures that will address potential impacts of the discharge and, once approved, will have to implement that workplan promptly thereafter. In addition to an assessment of overall compliance, the workplan will specifically address achieving a discharge temperature that is fully protective of the cold-water beneficial use until the discharge can be eliminated. Sampling for compliance with Receiving Water Limitations will be established at a single point (SN001) for all parameters except temperature, turbidity, and the change in pH (of 0.5 pH units), which cannot accurately be measured.

REASONABLE POTENTIAL ANALYSIS FOR EFFLUENT LIMITATIONS – CTR CONSTITUENTS

35. Using the procedures in Section 1.3 of the SIP, the Regional Board finds that the discharge has a reasonable potential to cause or contribute to an in-stream excursion above a water quality criterion for the following constituents:

a. **Dichlorobromomethane**
Data provided by the Discharger indicate that dichlorobromomethane was detected in the facility's effluent at a maximum concentration of 1.2 µg/L. U.S. EPA human health CTR criteria for dichlorobromomethane are 0.56 µg/l (for waters from which both water and aquatic organisms are consumed) and 46 µg/l (for waters from which only aquatic organisms are consumed) as a 30-day average. The maximum detected concentration of dichlorobromomethane exceeds the CTR criterion for waters from which both water and aquatic organisms are consumed. Based on this information, dichlorobromomethane is discharged from the facility at levels that cause, have the reasonable potential to cause, or contribute to an excursion of applicable water quality standards. Accordingly, Effluent Limitations for dichlorobromomethane of 1.1 µg/L and 0.0092 lbs/day (daily maximum) and 0.56 µg/L and 0.0047 lbs/day (monthly average), based on the applicable CTR criteria, are included in this Order. A time schedule has been included in this Order for compliance with the dichlorobromomethane limitation.

b. **Bis(2-ethylhexyl)phthalate**
The existing Waste Discharge Requirements, Order No. 97-112, did not include effluent limitations for bis(2-ethylhexyl)phthalate; however, it did require that the Discharger complete a study of the effects of bis(2-ethylhexyl)phthalate on surface waters. A time schedule for compliance with this Provision is included in this Order. The Discharger submitted a report in August 1998 indicating that bis(2-ethylhexyl)phthalate was detected

in several samples during a one-month sample period. Additional sampling was conducted and a second report was submitted in May 1999. This report indicated that bis(2-ethylhexyl)phthalate was not detected in any of the samples at the lowest practicable detection limits. The Regional Board did not reopen the NPDES Order at that time to include effluent limits for bis(2-ethylhexyl)phthalate; however, the Board did recommend that the Discharger continue periodic sampling and analysis to determine and eliminate the source. In the *May 1999 Final Water Quality Sampling Report: Bis(2-ethylhexyl)phthalate*, the Discharger indicated that the source of the contamination had been identified and that bis(2-ethylhexyl)phthalate was no longer present in the discharge.

Data provided by the Discharger in response to the 10 September 2001 letter indicate that bis(2-ethylhexyl)phthalate was detected at a maximum effluent concentration of 9.0 µg/L (November 2002).

U.S. EPA human health NTR criteria for bis(2-ethylhexyl)phthalate are 1.8 µg/l (for waters from which both water and aquatic organisms are consumed) and 5.9 µg/l (for waters from which only aquatic organisms are consumed) as a 30-day average. The maximum detected concentration of bis(2-ethylhexyl)phthalate exceeds human health NTR criteria. The presence of bis(2-ethylhexyl)phthalate in an effluent sample collected in 2002 indicates that the source of bis(2-ethlyhexyl)phthalate has not yet been eliminated and that bis(2-ethylhexyl)phthalate is discharged from the facility at levels that cause, have the reasonable potential to cause, or contribute to an excursion of applicable water quality standards. Accordingly, Effluent Limitations for bis(2-ethylhexyl)phthalate, of 3.6 µg/L and 0.03 lbs/day (daily maximum) and 1.8 µg/L and 0.015 lbs/day (monthly average), based on the applicable CTR criteria, are included in this Order. A time schedule has been included in this Order for compliance with the bis(2-ethylhexyl)phthalate limitation.

EFFLUENT LIMITATIONS REMOVED FROM ORDER

36. **Phenols:** Order No. 97-112 included technology-based effluent limitations for phenols calculated based upon best professional judgment. These limits are 0.6 mg/L and 5 lbs/day (30-day average) and 3.4 mg/L and 28.4 lbs/day (daily maximum). Effluent monitoring data for phenols indicate exceedances of the 30-day average limit during the previous permit term in February 1999 (1.64 mg/L and 6.16 lbs/day based on two samples). Order No. 97-112 does not provide the basis for the effluent limitations for phenols. Since the issuance of Order 97-112, the CTR was implemented. U.S. EPA human health CTR criteria for phenol are 21 mg/l (for waters from which both water and aquatic organisms are consumed) and 4,600 mg/l (for waters from which only aquatic organisms are consumed) as a 30-day average. There are additional CTR criteria for other phenolic compounds. CTR monitoring in 2002 indicate no detectable levels of any of the CTR phenolic compounds in the effluent or at the upstream receiving water monitoring station (*i.e.*, background). The CTR provides new information on phenols and the effects they have on human and aquatic health. Based upon the CTR criteria for phenols and phenolic compounds, there is no reasonable potential for the discharge to exceed these limitations; therefore, Effluent Limitations for phenols have been removed from

this Order. This change is consistent with the Federal anti-backsliding provisions of 40 CFR 122.44(l)12 and 122.62(a)(16).

37. **Electrical Conductivity (EC)**: Order No. 97-112 contained effluent limitations of 500 µmhos/cm (30-day average) and 1,000 µmhos/cm (daily maximum) for EC (or specific conductance). However, the California Department of Health Services (DHS) secondary MCL for EC is 900 µmhos/cm and the agricultural water quality goal is 700 µmhos/cm. The maximum EC of effluent sampled over the previous permit term was 422.7 µmhos/cm and the average EC was 66.8 µmhos/cm. These values are below the secondary MCL and the agricultural water quality goal for EC. They also are well below the effluent limitations from the previous Order. The Regional Board is not including effluent limitation for EC in this Order. New information regarding the low EC of the effluent, based on more than five years monitoring (daily in most months), along with information regarding appropriate discharge levels for protection of agricultural and municipal beneficial uses justify removal of this effluent limitation. This change is consistent with the Federal anti-backsliding provisions of 40 CFR 122.44(l)12 and 122.62(a)(16).

INTERIM EFFLUENT LIMITATIONS - TIME SCHEDULES

38. As stated in the above Findings, the U.S. EPA adopted the NTR and the CTR, which contains water quality standards applicable to this discharge and the SIP contains guidance on implementation of the NTR and CTR. The SIP, Section 2.2.1, requires that if a compliance schedule is granted for a CTR or NTR constituent, the Regional Board shall establish interim requirements and dates for their achievement in the NPDES permit. The interim limitations must: be based on current treatment plant performance or existing permit limitations, whichever is more stringent; include interim compliance dates separated by no more than one year, and; be included in the Provisions. The interim limitations in this Order are based on the current treatment plant performance. In developing the interim limitation, where there are ten sampling data points or more, sampling and laboratory variability is accounted for by establishing interim limits that are based on normally distributed data where 99.9% of the data points will lie within 3.3 standard deviations of the mean (*Basic Statistical Methods for Engineers and Scientists, Kennedy and Neville, Harper and Row*). Therefore, the interim limitations in this Order are established as the mean plus 3.3 standard deviations of the available data. Where actual sampling shows an exceedance of the proposed 3.3-standard deviation interim limit, the maximum detected concentration has been established as the interim limitation. When there are less than ten sampling data points available, the *Technical Support Document for Water Quality Based Toxics Control* ((EPA/505/2-90-001), TSD) recommends a coefficient of variation of 0.6 be utilized as representative of wastewater effluent sampling. The TSD recognizes that a minimum of ten data points is necessary to conduct a valid statistical analysis. The multipliers contained in Table 5-2 of the TSD are used to determine a maximum daily limitation based on a long-term average objective. In this case, the long-term average objective is to maintain, at a minimum, the current plant performance level. Therefore, when there are less than ten sampling points for a constituent, interim limitations are based on 3.11 times the maximum observed sampling point to obtain the daily maximum interim limitation (*TSD, Table 5-2*). The Regional Board finds that the Discharger

can undertake source control and treatment plant measures to maintain compliance with the interim limitations included in this Order. Interim limitations are established when compliance with NTR- and CTR-based Effluent Limitations cannot be achieved by the existing discharge. Discharge of constituents in concentrations in excess of the final Effluent Limitations, but in compliance with the interim Effluent Limitations, can significantly degrade water quality and adversely affect the beneficial uses of the receiving stream on a long-term basis. For example, U.S. EPA states in the Ambient Water Quality Criteria for the Protection of Freshwater Aquatic Life for copper, that it will take an unstressed system approximately three years to recover from a pollutant in which exposure to copper exceeds the recommended criterion. The interim limitations, however, establish an enforceable ceiling concentration until compliance with the Effluent Limitation can be achieved.

39. Section 2.1 of the SIP provides that: "*Based on an existing discharger's request and demonstration that it is infeasible for the discharger to achieve immediate compliance with a CTR criterion, or with an effluent limitation based on a CTR criterion, the RWQCB may establish a compliance schedule in an NPDES permit*." Section 2.1 further states that compliance schedules may be included in NPDES permits provided that the following justification has been submitted: …"*(a) documentation that diligent efforts have been made to quantify pollutant levels in the discharge and the sources of the pollutant in the waste stream; (b) documentation of source control measures and/or pollution minimization measures currently underway or completed; (c) a proposal for additional or future source control measures, pollutant minimization actions, or waste treatment (i.e., facility upgrades); and (d) a demonstration that the proposed schedule is as short as practicable*." In this Order, final water quality based effluent limitations for dichlorobromomethane and bis(2-ethylhexyl)phthalate become effective on **1 June 2007** if the Discharger fails to eliminate the discharge as is proposed in the Report of Waste Discharge, or on **29 April 2010** if regulatory requirements or unexpected equipment issues require maintenance of the discharge beyond 1 June 2007. Based on Section 2.2.1 of the SIP, interim effluent limitations were derived based on recent performance.

GENERAL

40. The permitted discharge is consistent with the antidegradation provisions of 40 CFR 131.12 and State Water Resources Control Board Resolution 68-16. Compliance with these requirements will result in the use of best practicable treatment or control of the discharge. Resolution No. 68-16 requires the Regional Board regulate the discharge of wastes, to maintain high quality waters of the State, not unreasonably affect beneficial uses, and not result in water quality less than that described in the Regional Board's policies (*e.g.*, quality that exceeds water quality objectives). The impact on existing water quality will be insignificant.

41. Monitoring is required by this Order for the purposes of assessing compliance with permit limitations and water quality objectives and gathering information to evaluate the need for additional limitations.

42. The Clean Water Act, Section 303(a-c), required states to adopt numeric criteria where they are necessary to protect designated uses. The Regional Board adopted numeric criteria in the Basin Plan. The Basin Plan is a regulatory reference for meeting the state and federal requirements for water quality control (40 CFR 131.20). State Board Resolution No. 68-16, the Antidegradation Policy, does not allow changes in water quality less than that prescribed in Water Quality Control Plans (Basin Plans). The Basin Plan states that; "*The numerical and narrative water quality objectives define the least stringent standar*ds that the Regional Board will apply to regional waters in order to protect the beneficial uses." This Order contains Receiving Water Limitations based on the Basin Plan numerical and narrative water quality objectives for Biostimulatory Substances, Chemical Constituents, Color, Dissolved Oxygen, Floating Material, Oil and Grease, pH, Sediment, Settleable Material, Suspended Material, Tastes and Odors, Temperature, Toxicity and Turbidity.

43. Effluent limitations and toxic effluent standards established pursuant to Sections 208(b), 301, 302, 304 (Information and Guidelines), and 307 of the Clean Water Act (CWA) and amendments thereto are applicable to the discharge.

44. The discharge is presently governed by Waste Discharge Requirements Order No. 97-112, adopted by the Regional Board on 20 June 1997.

45. The action to adopt an NPDES permit is exempt from the provisions of Chapter 3 of the California Environmental Quality Act (CEQA) (Public Resources Code Section 21000, *et seq*.), requiring preparation of an environmental impact report or negative declaration in accordance with Section 13389 of the California Water Code.

46. USEPA and the Regional Board have classified this discharge as a minor discharge.

47. Section 13267 of the California Water Code states, in part, "*(a) A regional board, in establishing…waste discharge requirements… may investigate the quality of any waters of the state within its region*" and "*(b) (1) In conducting an investigation…, the regional board may require that any person who… discharges… waste…that could affect the quality of waters within its region shall furnish, under penalty* of perjury, technical or monitoring program reports which the regional board requires." The attached Monitoring and Reporting Program is issued pursuant to California Water Code Section 13267. The attached Monitoring and Reporting Program is necessary to assure compliance with these waste discharge requirements. The Discharger operates the facility that discharges waste subject to this Order.

48. The attached Monitoring and Reporting Program No. R5-2005-0055, and Attachments A through D are a part of this Order.

49. The Regional Board has considered the information in the attached Information Sheet in developing the Findings of this Order. The attached Information Sheet is part of this Order.

50. The Regional Board has notified the Discharger and interested agencies and persons of its intent to prescribe waste discharge requirements for this discharge and has provided them with

an opportunity for a public hearing and an opportunity to submit their written views and recommendations.

51. The Regional Board, in a public meeting, heard and considered all comments pertaining to the discharge.

52. This Order shall serve as an NPDES permit pursuant to Section 402 of the CWA, and amendments thereto, and shall take effect upon the date of hearing, provided USEPA has no objections.

IT IS HEREBY ORDERED that Order No. 97-112 is rescinded and Formica Corporation, its agents, successors and assigns, in order to meet the provisions contained in Division 7 of the California Water Code and regulations adopted thereunder, and the provisions of the Clean Water Act and regulations and guidelines adopted thereunder, shall comply with the following:

A. Discharge Prohibitions:

1. Discharge of wastewater at a location or in a manner different from that described in the Findings is prohibited.

2. The by-pass or overflow of wastes to surface waters is prohibited, except as allowed by Standard Provision A.13. [See attached "Standard Provisions and Reporting Requirements for Waste Discharge Requirements (NPDES)"].

3. Neither the discharge nor its treatment shall create a nuisance as defined in Section 13050 of the California Water Code.

4. The discharge of any wastewater or any alcohol, formaldehyde, phenolic resin, or melamine resin storage tank spill catchment basin water or residue to any ground surface, surfaces waters, or surface water drainage courses is prohibited.

5. The discharge of any wastes other than the non-contact cooling water to the ground surface, surface waters or surface water drainage courses is prohibited.

6. The use of scale and corrosion control additives other than CHEMTREAT CL-1467 and CHEMTREAT CL-450 is prohibited.

7. The discharge of waste classified as "hazardous" as defined in Sections 2521(a) and 2522(a) of 23 CCR Division 3, Chapter 15 is prohibited.

B. Effluent Limitations (SN001)**:**

1. Effluent discharge at SN001 shall not exceed the following limits:

Constituents	Units	Monthly Average	4-Day Average	Daily Maximum	1-Hour Average
Chemical Oxygen Demand (COD)[1]	mg/L lbs/day[3]	10 83	-- --	35 292	-- --
Total Suspended Solids (TSS)[1]	mg/L lbs/day[3]	10 83	-- --	15 125	-- --
Dichlorobromomethane[2]	µg/L lbs/day[3]	0.56 0.0047	-- --	1.1 0.0092	-- --
Bis(2-ethylhexyl)phthalate[2]	µg/L lbs/day[3]	1.8 0.015	-- --	3.6 0.030	-- --
Aluminum[4]	µg/L lbs/day[3]	71 0.59	-- --	750 6.3	-- --
Iron	µg/L lbs/day[3]	300 2.5	-- --		-- --
Total Trihalomethanes[5]	µg/L lbs/day[3]	80 0.67	-- --	-- --	-- --
Naphthalene	µg/L lbs/day[3]	14 0.12	-- --	-- --	-- --
Manganese	µg/L lbs/day[3]	50 0.42	-- --	-- --	-- --
Persistent Chlorinated Hydrocarbon Pesticides[6]	µg/L	--	--	ND[7]	--
Total Residual Chlorine	mg/L lbs/day[3]	-- --	0.01 0.08	-- --	0.02 0.17

[1] To be ascertained by a 8-hour composite sample

[2] The new final Effluent Limitations B.1 for dichlorobromomethane and bis(2-ethylhexyl)phthalate shall become effective from **1 June 2007 forward,** or from **29 April 2010 forward** if regulatory requirements or unexpected equipment issues require maintenance of the discharge beyond 1 June 2007**.** See Provision No. 2 of this Order for more detail.

[3] Mass limits calculated based on permitted average daily flow of 1.0 mgd.

[4] Compliance can be demonstrated using either total, or acid-soluble (inductively coupled plasma/atomic emission spectrometry or inductively coupled plasma/mass spectrometry) analysis methods, as supported by U.S. EPA's Ambient Water Quality Criteria for Aluminum document (EPA 440/5-86-008), or other standard methods that exclude aluminum silicate as approved by the Executive Officer.

[5] Total trihalomethanes is the sum of bromoform, bromodichloromethane, chloroform, and dibromochloromethane.

[6] See the Information Sheet for the list of persistent chlorinated hydrocarbon pesticides.

[7] ND (non-detectable), the non-detectable limitation applies to each individual pesticide at any detection level. No individual pesticide may be present in the discharge at detectable concentrations. The Discharger shall use EPA standard analytical techniques that have the lowest possible detectable level for persistent chlorinated hydrocarbon pesticides.

2. Until final effluent limitations for dichlorobromomethane and bis(2-ethylhexyl)phthalate become effective, the effluent shall not exceed the following interim priority pollutant limits for dichlorobromomethane and bis(2-ethylhexyl)phthalate:

Constituents	Units	Daily Maximum (MDEL)
Dichlorobromomethane[1]	µg/L lbs/day[2]	3.7 0.031
Bis(2-ethylhexyl)phthalate [1]	µg/L lbs/day[2]	28 0.23

[1] Full compliance with dichlorobromomethane and bis(2-ethylhexyl)phthalate Effluent Limitations B. 1 are required from **1 June 2007 forward,** or from **29 April 2010 forward** if regulatory requirements or unexpected equipment issues require maintenance of the discharge beyond 1 June 2007, and **prior to 1 June 2007** or **29 April 2010**, effluent shall not exceed Interim Effluent Limits B. 2 above. See Provision No. 2 of this Order for more detail.

[2] Mass limits calculated based on permitted average daily flow of 1.0 mgd.

3. The discharge shall not have a pH less than 6.5 nor greater than 8.5.

4. The average monthly metered or estimated dry weather discharge flow shall not exceed 1.0 million gallons per day.

5. Survival of aquatic organisms in 96-hour bioassays of undiluted waste shall be no less than:

   Minimum for any one bioassay - - - - - - - - - - - - - - - - - - 70%
   Median for any three or more consecutive bioassays - - - - 90%

C. Emergent Marsh Specifications:

1. Discharge to the emergent marsh shall not cause aquatic communities and populations, including vertebrate, invertebrate, and plant species, to be degraded.

2. Discharge to the emergent marsh shall not cause toxic pollutants to be present in the water column, sediments, or biota in concentrations that adversely affect beneficial uses; that produce detrimental response in human, plant, animal, or aquatic life; or that bioaccumulate in aquatic resources at levels which are harmful to human health.

3. The Discharger shall consult with the local Mosquito Abatement District to minimize vector issues within the marsh.

4. Objectionable odors originating at this facility shall not be perceivable beyond the limits of the property owned by the discharger.

D. Solids Disposal:

1. Collected residue or other solids removed from liquid wastes or containment areas shall be disposed of in a manner approved by the Executive Officer, and consistent with *Consolidated Regulations for Treatment, Storage, Processing, or Disposal of Solid Waste,* as set forth in Title 27, CCR, Division 2, Subdivision 1, Section 20005, et seq.

2. Any proposed change in disposal practices from a previously approved practice shall be reported to the Executive Officer and USEPA Regional Administrator at least **90 days** in advance of the change.

E. Receiving Water Limitations:

Receiving Water Limitations are based upon water quality objectives contained in the Basin Plan. As such, they are a required part of this permit. Sampling for compliance with receiving water limitations shall be established at a single point (SN001) for all parameters except temperature, turbidity, and the change in pH (of 0.5 pH units), which cannot be accurately measured.

The discharge shall not cause the following in the receiving water:

1. Concentrations of dissolved oxygen to fall below 7.0 mg/L. The monthly median of the mean daily dissolved oxygen concentration shall not fall below 85 percent of saturation in the main water mass, and the 95th percentile concentration shall not fall below 75 percent of saturation.

2. Oils, greases, waxes, or other materials to form a visible film or coating on the water surface or on the stream bottom.

3. Oils, greases, waxes, floating material (liquids, solids, foams, and scums) or suspended material to create a nuisance or adversely affect beneficial uses.

4. Esthetically undesirable discoloration.

5. Fungi, slimes, or other objectionable growths.

6. The turbidity to increase as follows:

    a. More than 1 Nephelometric Turbidity Units (NTUs) where natural turbidity is between 0 and 5 NTUs.
    b. More than 20 percent where natural turbidity is between 5 and 50 NTUs.
    c. More than 10 NTUs where natural turbidity is between 50 and 100 NTUs.
    d. More than 10 percent where natural turbidity is greater than 100 NTUs.

7. The ambient pH to fall below 6.5, exceed 8.5, or the 30-day average pH to change by more than 0.5 units.

8. The ambient temperature to increase more than 5°F.

9. Deposition of material that causes nuisance or adversely affects beneficial uses.

10. Aquatic communities and populations, including vertebrate, invertebrate, and plant species, to be degraded.

11. Toxic substances to be present in the water column, sediments, or biota in concentrations that adversely affect beneficial uses; that produce detrimental response in human, plant, animal, or aquatic life; or that bioaccumulate in aquatic resources at levels which are harmful to human health.

12. Violation of any applicable water quality standard for receiving waters adopted by the Regional Board or the SWRCB pursuant to the CWA and regulations adopted thereunder.

13. Taste or odor-producing substances in concentrations that impart undesirable tastes or odors to domestic or municipal water supplies or to fish flesh or other edible products of aquatic origin or to cause nuisance or adversely affect beneficial uses.

14. Upon adoption of any applicable water quality standard for receiving waters by the U.S. Environmental Protection Agency, the Regional Board or the State Water Resources Control Board pursuant to the CWA and regulations adopted thereunder, this permit may be reopened and receiving water limitations added.

F. Groundwater Limitations:

1. The discharge shall not degrade groundwater quality.

G. Provisions:

1. The treatment facilities shall be designed, constructed, operated, and maintained to prevent inundation or washout due to floods with a 100-year return frequency.

2. **Dichlorobromomethane and Bis(2-ethylhexyl)phthalate Compliance Schedule:** This Order contains Effluent Limitations based on water quality criteria contained in the CTR for dichlorobromomethane and bis(2-ethylhexyl)phthalate. Final water quality-based effluent limitations for dichlorobromomethane and bis(2-ethylhexyl)phthalate become effective on **1 June 2007** if the discharge is not eliminated as presented in the Report of Waste Discharge, or on **29 April 2010,** if regulatory requirements or unexpected equipment issues require maintenance of the discharge beyond 1 June 2007. In the event the discharge is not eliminated by 29 April 2007, the Discharger shall be required to submit a workplan that proposes additional measures that will address potential impacts of the discharge and, once approved, will have to implement that workplan promptly thereafter. The Discharger must comply with the interim effluent limitations for dichlorobromomethane and bis(2-ethylhexyl)phthalate included in this Order until the date compliance with the final effluent limitations is required. As this schedule is greater than one year, the Discharger shall submit semi-annual progress reports on **1 April and 1 October** each year until the Discharger achieves compliance with the final water quality-based effluent limitations for dichlorobromomethane and bis(2-ethylhexyl)phthalate.

3. The Discharger shall conduct chronic toxicity testing as specified in the Monitoring and Reporting Program. If the testing indicates that the discharge causes, has the reasonable potential to cause, or contributes to an in-stream excursion above the water quality objective for toxicity, the Discharger shall initiate a Toxicity Identification Evaluation (TIE) to identify the causes of toxicity. Upon completion of the TIE, the Discharger shall submit a workplan to conduct a Toxicity Reduction Evaluation (TRE) and, after Regional Board evaluation of the plan, conduct the TRE. This Order will be reopened and a chronic toxicity limitation included and/or a limitation for the specific toxicant identified in the TRE included. If a chronic toxicity water quality objective is adopted by the SWRCB, this Order may be reopened and a limitation based on that objective included.

4. The Discharger shall report to the Regional Board any toxic chemical release data it reports to the State Emergency Response Commission within 15 days of reporting the data to the Commission pursuant to section 313 of the "Emergency Planning and Community Right to Know Act of 1986."

5. The Discharger shall comply with all the items of the "Standard Provisions and Reporting Requirements for Waste Discharge Requirements (NPDES)", dated February 2004, which are part of this Order. This attachment and its individual paragraphs are referred to as "Standard Provisions."

6. The Discharger shall comply with Monitoring and Reporting Program No. R5-2005-0055, which is part of this Order, and any revisions thereto as ordered by the Executive Officer.

7. The Discharger must use USEPA test methods and detection limits to achieve detection levels below applicable water quality criteria. At a minimum the Discharger shall comply with the Monitoring Requirements for these constituents as outlined in Section 2.3 and 2.4

of the Policy for Implementation of Toxics Standards for Inland Surface Waters, Enclosed Bays, and Estuaries of California, adopted 2 March 2000 by the SWRCB. All peaks identified by the USEPA test methods shall be reported.

8. This Order expires on **29 April 2010** and the Discharger must file a Report of Waste Discharge in accordance with Title 23, CCR, not later than 180 days in advance of such date in application for renewal of waste discharge requirements if it wishes to continue the discharge.

9. Prior to making any change in the discharge point, place of use, or purpose of use of the wastewater, the Discharger shall obtain approval of, or clearance from the SWRCB (Division of Water Rights).

10. In the event of any change in control or ownership of land or waste discharge facilities presently owned or controlled by the Discharger, the Discharger shall notify the succeeding owner or operator of the existence of this Order by letter, a copy of which shall be immediately forwarded to this office.

11. To assume operation under this Order, the succeeding owner or operator must apply in writing to the Executive Officer requesting transfer of the Order. The request must contain the requesting entity's full legal name, the State of incorporation if a corporation, address and telephone number of the persons responsible for contact with the Regional Board and a statement. The statement shall comply with the signatory paragraph of Standard Provision D.6 and state that the new owner or operator assumes full responsibility for compliance with this Order. Failure to submit the request shall be considered a discharge without requirements, a violation of the California Water Code. Transfer shall be approved or disapproved in writing by the Executive Officer.

I, THOMAS R. PINKOS, Executive Officer, do hereby certify the foregoing is a full, true, and correct copy of an Order adopted by the California Regional Water Quality Control Board, Central Valley Region, on 29 April 2005.

_____

THOMAS R. PINKOS, Executive Officer

CALIFORNIA REGIONAL WATER QUALITY CONTROL BOARD
CENTRAL VALLEY REGION

ORDER NO. R5-2005-0055

NPDES NO. CA0004057

MONITORING AND REPORTING PROGRAM
FOR
FORMICA CORPORATION
SIERRA PLANT
PLACER COUNTY

This Monitoring and Reporting Program is issued pursuant to California Water Code Sections 13383 and 13267. The Discharger shall not implement any changes to this Program unless and until the Regional Board or Executive Officer issues a revised Monitoring and Reporting Program. Specific sample station locations shall be established under direction of the Regional Board's staff, and a description of the stations shall be attached to this Order.

Section 13267 of the California Water Code states, in part, "*(a) A regional board, in establishing…waste discharge requirements…may investigate the quality of any waters of the state within its region"* and *"(b)(1) In conducting an investigation…, the regional board may require that any person who… discharges… waste… that could affect the quality of waters within its region shall furnish, under penalty of perjury, technical or monitoring program reports which the regional board requires."* This Monitoring and Reporting Program to monitor surface water required by Order No. R5-2005-0055 is necessary to assure compliance with Order No. R5-2005-0055. The Discharger operates the facility that discharges waste subject to Order No. R5-2005-0055.

EFFLUENT MONITORING

Effluent samples shall be collected at SN001 prior to discharge to the emergent marsh and downstream from the pH adjustment system. Effluent samples shall be representative of the volume and quality of the discharge. Time of collection of samples shall be recorded. Effluent monitoring shall include at least the following:

Constituents	Units	Type of Sample	Sampling Frequency
Flow	mgd	Metered or Estimated	Continuous or Daily (if estimated)
Chemical Oxygen Demand (COD)	mg/L, lbs/day	24-hour composite[1]	Biweekly (once every two weeks)
Total Suspended Solids (TSS)	mg/L, lbs/day	24-hour composite[1]	Biweekly (once every two weeks)
Dichlorobromomethane	µg/L, lbs/day	Grab	Monthly
Bis(2-ethylhexyl)phthalate	µg/L, lbs/day	Grab	Monthly

Constituents	Units	Type of Sample	Sampling Frequency
Acute Toxicity[2]	% Survival	24-hr. composite[1]	Quarterly
Chronic Toxicity[3]	See below	24-hr. composite[1]	Quarterly
Total residual chlorine[4,5]	mg/L, lbs/day	Metered	Continuous
Aluminum[6]	µg/L, lbs/day	24-hr composite	Quarterly
Iron	µg/L, lbs/day	24-hr. composite	Quarterly
Total Trihalomethanes[7]	µg/L, lbs/day	Grab	Quarterly
Naphthalene	µg/L, lbs/day	Grab	Quarterly
Manganese	µg/L, lbs/day	24-hr. composite	Quarterly
Persistent Chlorinated Hydrocarbon Pesticides[8]	µg/L, lbs/day	Grab	Quarterly
pH	Standard units	Metered or Grab	Continuous or Weekly (if estimated)
Temperature	°F	Grab	3 times weekly
Dissolved Oxygen	mg/L	Grab	Weekly
Electrical Conductivity	µmhos/cm	Grab	Quarterly
Turbidity	NTU	Grab	Weekly

1 Composite samples shall be flow proportional composite samples.

2 All acute toxicity bioassays shall be performed according to EPA-821-R-02-012 *Methods for Measuring the Acute Toxicity of Effluents and Receiving Waters to Freshwater and Marine Organisms, Fifth Edition,* October 2002 (or latest edition) using fathead minnows (Pimephales promelas) with no pH adjustment, with exceptions granted to the Discharger by the Executive Officer and the Environmental Laboratory Accreditation Program (ELAP). Temperature and pH shall be recorded at the time of bioassay sample collection.

3 See Three Species Chronic Toxicity Monitoring requirements below.

4 Use of continuous monitoring instrumentation for chlorine and dechlorination agent residual in the effluent is an appropriate method of process control, however, the accuracy of the chlorine analyzers are not low enough to meet minimum detection levels. Residual dechlorination agent in the effluent indicates that chlorine is not present in the effluent, which can validate a zero residual reading on the chlorine analyzer. Reporting of these two constituents, when dechlorination agent is present and chlorine is zero, sufficiently insures compliance with the chlorine residual limit, as long as the instruments are maintained and calibrated in accordance with the manufactures recommendations. In addition to the continuous recorder, a monthly grab sample of the effluent shall be analyzed by a certified laboratory for chlorine and the dechlorination agent. Readings from the residual analyzers

shall be taken at the time of sampling, and reported with the laboratory results to validate the accuracy of the process control instrumentation.

[5] Report magnitude and duration of all non-zero residual events. Non-zero events are defined as a reading of zero for chlorine residual and the dechlorination agent is below the minimum detection limit of the continuous residual monitoring device. If the continuous monitoring device is out of service, then one grab chlorine residual sample shall be collected per day.

[6] Compliance can be demonstrated using either total, or acid-soluble (inductively coupled plasma/atomic emission spectrometry or inductively coupled plasma/mass spectrometry) analysis methods, as supported by U.S. EPA's Ambient Water Quality Criteria for Aluminum document (EPA 440/5-86-008), or other standard methods that exclude aluminum silicate as approved by the Executive Officer.

[7] Total trihalomethanes is the sum of bromoform, bromodichloromethane, chloroform, and dibromochloromethane.

[8] See the Attachment D (page 3) for the list of Persistent Chlorinated Hydrocarbon Pesticides.

If the discharge is intermittent rather than continuous, then on the first day of each such intermittent discharge, the Discharger shall monitor and record data for all of the constituents listed above, after which the frequencies of analysis given in the schedule shall apply for the duration of each such intermittent discharge. In no event shall the Discharger be required to monitor and record data more often than twice the frequencies listed in the schedule.

RECEIVING WATER MONITORING

All receiving water samples shall be grab samples. Receiving water monitoring shall include at least the following:

Station	Description
SN001	Prior to discharge to the emergent marsh and downstream from the pH adjustment system

Constituents	Units	Station	Sampling Frequency
Dissolved Oxygen	mg/L	SN001	Weekly
pH	standard units	SN001	Weekly
Temperature	°F	SN001	Weekly
Turbidity	NTU	SN001	Weekly

In conducting the receiving water sampling, a log shall be kept of the receiving water conditions, in the emergent marsh and all sampling locations. Attention shall be given to the presence or absence of:

a. Floating or suspended matter
b. Discoloration
c. Bottom deposits
d. Aquatic life
e. Visible films, sheens or coatings
f. Fungi, slimes, or objectionable growths
g. Potential nuisance conditions

Notes on receiving water conditions shall be summarized in the monitoring report.

THREE SPECIES CHRONIC TOXICITY MONITORING

Chronic toxicity monitoring shall be conducted to determine whether the effluent is contributing toxicity to the receiving water. The testing shall be conducted as specified in EPA-821-R-02-013, *Short-Term Methods for Estimating the Chronic Toxicity of Effluents and Receiving Waters to Freshwater Organisms,* Fourth Edition, October 2002. Composite samples shall be collected at the SN001 prior to discharge to the emergent marsh and downstream from the pH adjustment system. Twenty-four hour composite samples shall be representative of the volume and quality of the discharge. Time of collection samples shall be recorded. Dilution and control waters shall be provided by the laboratory or collected from the potable water supply at the facility. The sensitivity of the test organisms to a reference toxicant shall be determined concurrently with each bioassay and reported with the test results. Both the reference toxicant and effluent test must meet all test acceptability criteria as specified in the chronic manual. If the test acceptability criteria are not achieved, then the Discharger must re-sample and re-test within 14 days. Chronic toxicity monitoring shall include the following:

Species: *Fathead minnows* (*Pimephales promelas), Ceriodaphnia dubia and Selenastrum capriconicutum*

Frequency: *Quarterly*

Dilution Series: *None*

PRIORITY AND OTHER POLLUTANTS MONITORING

The State Water Resources Control Board (SWRCB) adopted the *Policy for Implementation of Toxics Standards for Inland Surface Waters, Enclosed Bays, and Estuaries of California* (known as the State Implementation Policy or SIP). **The SIP states that the Regional Boards will require periodic monitoring for pollutants for which criteria or objectives apply and for which no effluent limitations have been established.** Accordingly, the Regional Board is requiring, as part of this Monitoring and Reporting Program, that the Discharger conduct **effluent monitoring (at SN001)** of

priority pollutants and other pollutants **one time no more than 365 days and no less than 180 days prior to expiration of this Order**. The list of priority pollutants and other pollutants and required minimum levels (MLs) (or criterion quantitation limits) is included as **Attachment D**. The Discharger must analyze **pH and hardness** at the same time as priority pollutants.

All analyses shall be performed at a laboratory certified by the California Department of Health Services. The laboratory is required to submit the Minimum Level (ML) and the Method Detection Limit (MDL) with the reported results for each constituent. The MDL should be as close as practicable to the USEPA MDL determined by the procedure found in 40 CFR Part 136. The results of analytical determinations for the presence of chemical constituents in a sample shall use the following reporting protocols:

a. Sample results greater than or equal to the reported ML shall be reported as measured by the laboratory.
b. Sample results less than the reported ML, but greater than or equal to the laboratory's MDL, shall be reported as "Detected but Not Quantified," or DNQ. The estimated chemical concentration of the sample shall also be reported.
c. For the purposes of data collection, the laboratory shall write the estimated chemical concentration next to DNQ as well as the words "Estimated Concentration." Numerical estimates of data quality may be by percent accuracy (+ or – a percentage of the reported value), numerical ranges (low to high), or any other means considered appropriate by the laboratory.
d. Sample results that are less than the laboratory's MDL shall be reported as "Not Detected" or ND.

REPORTING

Monitoring results shall be submitted to the Regional Board by the **first day** of the second month following sample collection. Quarterly, semi-annual, and annual monitoring results and reports shall be submitted by the **first day of the second month following each calendar quarter, semi-annual period, and year**, respectively.

In reporting the monitoring data, the Discharger shall arrange the data in tabular form so that the date, sample types (e.g., influent, effluent, etc.), the constituents, and the concentrations are readily discernible. The data shall be summarized in such a manner to illustrate clearly whether the discharge complies with waste discharge requirements. The highest daily maximum for the month, monthly and weekly averages, and medians, should be determined and recorded.

If the Discharger monitors any pollutant at the locations designated herein more frequently than is required by this Order, the results of such monitoring shall be included in the calculation and reporting of the values required in the discharge monitoring report form. Such increased frequency shall be indicated on the discharge monitoring report form.

By **1 February** of each year, the Discharger shall submit a written report to the Executive Officer containing the following:

a. The names and telephone numbers of persons to contact regarding the plant for emergency and routine situations.

b. A statement certifying when the flow meter and other monitoring instruments and devices were last calibrated, including identification of who performed the calibration (Standard Provision C.6).

c. A statement certifying whether the current operation and maintenance manual, and contingency plan, reflect the facility as currently constructed and operated, and the dates when these documents were last revised and last reviewed for adequacy.

The Discharger may also be requested to submit an annual report to the Regional Board with both tabular and graphical summaries of the monitoring data obtained during the previous year. Any such request shall be made in writing. The report shall discuss the facility's compliance record. If violations have occurred, the report shall also discuss the corrective actions taken and planned to bring the discharge into full compliance with the waste discharge requirements.

All reports submitted in response to this Order shall comply with the signatory requirements of Standard Provision D.6.

The Discharger shall implement the above monitoring program on the first day of the month following effective date of this Order.

Ordered by: THOMAS R. PINKOS, Executive Officer

29 April 2005
(Date)

INFORMATION SHEET

ORDER NO. R5-2005-0055
NPDES NO. CA0004057
FORMICA CORPORATION
SIERRA PLANT
PLACER COUNTY

BACKGROUND INFORMATION

The Formica Corporation, (Discharger) owns and operates a distribution and manufacturing facility located on the western side of the City of Rocklin in Placer County. The manufacturing facility, known as the Sierra Plant, manufactures Formica brand high-pressure decorative plastic laminate. Press cooling water and press vacuum cooling water are detained in an earthen, unlined area to provide some temperature equalization and particulate settling prior to discharge into a drainage ditch via a subsurface culvert and elevation control outlet. Print and translucent air conditioning cooling water, treater unwind brake cooling water and treater end rolls cooling water are discharged directly into the drainage ditch via a separate culvert upstream of the outlet where the press cooling waters enter the ditch. The noncontact cooling water discharges mix in the drainage ditch and a pH balance system is used to feed sulfuric acid into the effluent to lower the pH prior to it entering an unnamed tributary that joins Pleasant Grove Creek approximately two miles downstream. The discharge has resulted in the formation of a freshwater marsh at the point of discharge (hereafter emergent marsh). The Discharger has constructed an additional containment area for chemical spill prevention, which protects against discharge to surface waters in the event of any spillage of phenolic resin or isopropyl alcohol when the storage tanks for these chemicals are being filled. Any wastewater or residue that accumulates in this containment area is disposed of as hazardous waste. Alcohol, phenolic resin, and melamine resin also are stored in above-ground tanks with concrete spill catchment basins.

Process wastewater, consisting of boiler blowdown, air compressor cooling water, sheet duller rinse water, and sanitary wastewater are discharged to the Roseville Regional Wastewater Treatment Plant. It may be possible for the facility to discharge its noncontact cooling waters, permitted for discharge under this Order, to the Roseville Regional Wastewater Treatment Plant, thus eliminating the need for an NPDES permit for discharge to surface waters.

BENEFICIAL USES OF THE RECEIVING WATER

The Basin Plan does not specifically identify beneficial uses for the unnamed tributary to Pleasant Grove Creek and Pleasant Grove Creek, but does identify present and potential uses for the Sacramento River. The beneficial uses of any specifically identified water body generally apply to its tributary streams; thus, the beneficial uses identified in the Basin Plan for the Sacramento River, from the Colusa Basin Drain to the "I" Street Bridge, are applicable to Pleasant Grove Creek. Additionally, the emergent marsh contains aquatic habitat, and the unnamed tributary to Pleasant Grove Creek qualifies as waters of the state and have the same beneficial uses as Pleasant Grove Creek. These beneficial uses are municipal and domestic supply, agricultural irrigation,

water contact recreation, non-contact water recreation, warm freshwater aquatic habitat, warm fish migration habitat, and warm spawning habitat, cold freshwater aquatic habitat, cold fish migration habitat, and cold spawning habitat, wildlife habitat, and navigation. This determination is based on the following facts:

a. *Domestic Supply and Agricultural Supply*

The Regional Board is required to apply the beneficial uses of municipal and domestic supply to the Sacramento River based on State Board Resolution No. 88-63 which was incorporated in the Basin Plan pursuant to Regional Board Resolution 89-056. In addition, the SWRCB has issued water rights to existing water users along the Sacramento River, the unnamed tributary and Pleasant Grove Creek downstream of the discharge for domestic and irrigation uses. Since the unnamed tributary and Pleasant Grove Creek are ephemeral streams, they also likely provide groundwater recharge during periods of low flow. The groundwater is a source of drinking water. In addition to the existing water uses, growth in the area, downstream of the discharge is expected to continue, which presents a potential for increased domestic and agricultural uses of the water in receiving stream.

b. *Water Contact and Noncontact Recreation and Esthetic Enjoyment*

The discharge flows through residential areas and there is ready public access to the unnamed tributary of Pleasant Grove Creek, Pleasant Grove Creek, Pleasant Grove Creek Canal, Natomas Cross Canal, and the Sacramento River. Exclusion of the public is unrealistic and contact recreational activities currently exist along the unnamed tributary of Pleasant Grove Creek, Pleasant Grove Creek, Pleasant Grove Creek Canal, Natomas Cross Canal, and the Sacramento River and these uses are likely to increase as the population in the area grows.

c. *Preservation and Enhancement of Fish, Wildlife and Other Aquatic Resources*

The California Department of Fish and Game (DFG) has verified that the fish species present in the Sacramento River and downstream waters are consistent with both cold- and warm-water fisheries and that there is a potential for anadromous fish migration, thus necessitating a cold-water designation. The Basin Plan (Table II-1) designates, the Sacramento River as being both a cold and warm freshwater habitat. Therefore, pursuant to the Basin Plan, the cold designation applies to the unnamed tributary of Pleasant Grove Creek, Pleasant Grove Creek, Pleasant Grove Creek Canal, Natomas Cross Canal, and the Sacramento River. The cold-water habitat designation necessitates that the in-stream dissolved oxygen concentration be maintained at, or above, 7.0 mg/L. This approach recognizes that, if the naturally occurring in-stream dissolved oxygen concentration is below 7.0 mg/L, the Discharger is not required to improve the naturally occurring level. Currently the unnamed tributary of Pleasant Grove Creek and Pleasant Grove Creek are ephemeral streams. The City of Roseville

has constructed a new wastewater treatment plant that currently discharges a significant volume of effluent to Pleasant Grove Creek. The City's wastewater discharges will change the character of the receiving stream where currently there may be periods where there is not hydraulic continuity with downstream waters. The significantly increased flow rate will increase the likelihood of coldwater fish migration into the Natomas Cross Canal, Pleasant Grove Creek Canal, Pleasant Grove Creek, and the unnamed tributary to Pleasant Grove Creek. Regional Board staff has observed large numbers of fish in the emergent marsh.

DILUTION CONSIDERATIONS

The unnamed tributary to Pleasant Grove Creek and Pleasant Grove Creek**,** absent the discharge, are ephemeral streams. The ephemeral nature of the unnamed tributary to Pleasant Grove Creek, and Pleasant Grove Creek means that the designated beneficial uses must be protected, but that no credit for receiving water dilution is available. Although the discharge, at times, maintains the aquatic habitat, constituents may not be discharged that may cause harm to aquatic life. At other times, natural flows within the unnamed tributary to Pleasant Grove Creek, and Pleasant Grove Creek help support the aquatic life. Both conditions may exist within a short time span, where the unnamed tributary to Pleasant Grove Creek, and Pleasant Grove Creek would be dry without the discharge and periods when sufficient background flows provide hydraulic continuity with the Sacramento River. Dry conditions occur primarily in the summer months, but may also occur throughout the year, particularly in low rainfall years. The lack of dilution results in more stringent effluent limitations to protect contact recreational uses, drinking water standards, agricultural water quality goals and aquatic life. Dilution may occur during and immediately following high rainfall events.

TECHNOLOGY-BASED EFFLUENT LIMITATIONS

All mass-based effluent limitations are calculated using the following equation:

$$X \frac{\mu g}{l} \times 10^{-6} \frac{g}{\mu g} \times 3.79 \frac{l}{gal} \times Flow \frac{gals}{day} \times 0.0022 \frac{lbs}{g} = Y \frac{lbs}{day} \qquad (*)$$

where

X = Concentration-based Effluent Limitation
Y = Mass-based Effluent Limitation

Chemical Oxygen Demand
Chemical oxygen demand (COD) is the measure of the oxygen equivalent of the portion of organic matter that can be oxidized by a strong chemical oxidizing agent. Order No. 97-112 established effluent limitations for chemical oxygen demand (COD) of 10 mg/L or 83 lbs/day (monthly average) and 35 mg/L or 292 lbs/day (daily maximum), which were technology-based limits developed using best professional judgment. These limitations are equivalent to the level of effluent quality expected by domestic tertiary treatment and also will be protective of beneficial

uses of the receiving water, particularly in maintaining dissolved oxygen levels. An excess of chemical oxygen demanding substances can cause depletion of the instream dissolved oxygen levels thereby causing harm to aquatic life. To ensure attainment of beneficial uses, this Order carries over the COD Effluent Limitations established by the previous Order.

TSS

Total suspended solids (TSS) are solids in water that can be trapped by a filter. Total suspended solid is a parameter use to measure water quality as a concentration of mineral and organic sediment. TSS can include a wide variety of material, such as silt, decaying plant and animal matter, industrial wastes, and sewage. High concentrations of suspended solids can cause many problems for stream health and aquatic life.

High TSS can block light from reaching submerged vegetation. As the amount of light passing through the water is reduced, photosynthesis slows down. Reduced rates of photosynthesis cause less dissolved oxygen to be released into the water by plans. If light is completely blocked from bottom dwelling plants, the plants will stop producing oxygen and will die. As the plants are decomposed, bacteria will use up even more oxygen from the water. Low dissolved oxygen can lead to fish kills. High TSS can also cause an increase in surface water temperature, because the suspended particles absorb heat from sunlight. This can cause dissolved oxygen levels to fall even further (because warmer waters can hold less DO), and can harm aquatic life in many other ways.

Order No. 97-112 established effluent limitations for TSS of 10 mg/L or 83 lbs/day (monthly average) and 15 mg/L or 125 lbs/day (daily maximum), which were technology-based limits developed using best professional judgment. These limitations are equivalent to the level of effluent quality expected by domestic tertiary treatment and also will be protective of the narrative water quality objective for suspended material from the Basin Plan. In order to ensure attainment of beneficial uses, this Order carries over the TSS Effluent Limitations established by the previous Order.

REASONABLE POTENTIAL ANALYSIS FOR EFFLUENT LIMITATIONS – NON-CTR CONSTITUENTS

Data submitted by the Discharge in response to the 10 September 2001 letter also were used to perform the reasonable potential analysis for constituents that are not included in the CTR or NTR. The analysis determines whether the discharge may cause, have a reasonable to cause, or contribute to an exceedance of any water quality criteria or objectives based on procedures in the U.S. EPA Technical Support Document for Water Quality-Based Toxics Control (TSD). 40 CFR 122.44 (d)(1)(iii), states: "…*a discharge causes, has a reasonable potential to cause, or contribute to an in-stream excursion above allowable ambient concentration of State numeric criteria within a State water quality standard for an individual pollutant, the permit must contain effluent limits for that pollutant*."

All mass-based effluent limitations are calculated using the following equation:

$$X\frac{\mu g}{l}\times 10^{-6}\frac{g}{\mu g}\times 3.79\frac{l}{gal}\times Flow\frac{gals}{day}\times 0.0022\frac{lbs}{g}=Y\frac{lbs}{day} \qquad (*)$$

where

X = Concentration-based Effluent Limitation
Y = Mass-based Effluent Limitation

Detected effluent concentrations of non-CTR constituents and reasonable potential multiplying factor are summarized in the table below:

Detected Concentrations and Reasonable Potential Multiplying Factor

Constituents	2/27/02	5/8/02	11/02	3/30/04	4/28/04	Reasonable Potential Multiplying Factor[1] (99% Confidence Level and 99% Probability Basis)
Aluminum	ND[2]	100[2]	ND[2]	10[3]	28.3[3]	7.4[4] 5.6[5]
Ammonia	90	ND	ND	--	--	5.6
Barium	17	ND	ND	--	--	5.6
Chloride	5800	5900	3100	--	--	5.6
Iron	140	ND	22	90	52.7	4.2
MTBE	ND	0.33	ND	--	--	5.6
Nitrate	110	460	ND	--	--	5.6
Sulfate	8700	8900	7600	--	--	5.6
Chloroform	16	ND	15	--	--	5.6
Naphthalene	4.5	ND	ND	--	--	5.6
Manganese	ND	74	ND	--	--	5.6

1 The multiplying factors are 7.4 (for 2 samples), 5.6 (for 3 samples), and 4.2 (for 5 samples).
2 Reported as total recoverable concentrations
3 Reported as acid-soluble aluminum concentrations.
4 Based on the two acid-soluble concentrations collected on 30 March 2004 and 28 April 2004.
5 Based on the three total recoverable concentrations collected on 27 February 2002, 8 May 2002, and November 2002.

Projected Maximum Effluent Concentration (MEC) of non-CTR constituents and controlling water quality criteria are summarized in the table below:

Controlling Water Quality Criteria and Projected Maximum Effluent Concentrations

Constituents	Controlling Water Quality Criteria (µg/L)	Criterion Concentration (µg/L)	Projected MEC[1] (µg/L)	Reasonable Potential?
Aluminum	Basin Plan narrative toxicity objective and U.S. EPA Ambient Water Quality Freshwater Aquatic Life Criteria	87	209[2] 560[3]	Yes
Ammonia	Basin Plan narrative toxicity objective and U.S. EPA Ambient Water Quality Freshwater Aquatic Life Criteria	624	504	No
Barium	Basin Plan objective	100	95	No
Chloride	Agricultural Water Quality Goal	106,000	33,040	No
Iron	Basin Plan chemical constituent objective and Secondary MCL	300	588	Yes
MTBE	Basin Plan chemical constituent objective and Secondary MCL	5	1.8	No
Nitrate	Basin Plan chemical constituent objective and Primary MCL	10,000	2,576	No
Sulfate (as SO_4)	Basin Plan chemical constituent objective and Secondary MCL	250,000	49,840	No
Chloroform	Basin Plan chemical constituent objective and Primary MCL	80	90	Yes
Naphthalene	Basin Plan narrative toxicity objective and U.S.EPA IRIS Reference Dose as a drinking water level	14	25	Yes
Manganese	Basin Plan chemical constituent objective and Secondary MCL	50	414	Yes

[1] The projected MEC (maximum effluent concentration) is determined by multiplying the maximum detected concentration with a reasonable potential multiplying factor that accounts for statistical variation. The multiplying factor (for 99% confidence level and 99% probability basis) is dependent on the coefficient of variation (CV) and number of reported effluent results. For less than 10 effluent data points, CV is estimated to equal 0.6.

[2] Calculated based on the two effluent data (measured in acid soluble concentrations)

[3] Calculated based on the three effluent data (measured in total recoverable concentrations)

Aluminum

Aluminum occurs naturally and makes up about 8% of the surface of the earth. When aluminum enters the environment, it can dissolve in lakes, streams, and rivers depending on the quality of the water. Studies have shown that infants and adults who received large doses of aluminum developed bone diseases, which suggests that aluminum may cause skeletal problems. Some sensitive people develop skin rashes from using aluminum chlorohydrate deodorants.

Reported effluent concentrations for aluminum are summarized in the following table:

Sampling Dates	Reported Effluent Concentrations of Aluminum (µg/L)
2/27/02	ND[1]
5/8/02	100[1]
11/5/02	ND[1]
3/30/04	10[2]
4/28/04	28.3[2]

[1] Reported as total recoverable concentrations
[2] Reported as acid-soluble concentrations

Using the methodology in the U.S. EPA's Technical Support Document (TSD) for Water Quality-Based Toxics Control, the projected maximum effluent concentration (MEC) of aluminum is calculated at 560 µg/L (as total recoverable concentration) and 209 µg/L (as acid-soluble concentration). Aluminum exists as aluminum silicate in suspended clay particles, which U.S. EPA acknowledges might be less toxic than other forms of aluminum. Correspondence with U.S. EPA indicates that the criterion is not intended to apply to aluminum silicate. Therefore, a monitoring method that excludes aluminum silicate is likely to be more appropriate. The use of acid-soluble analysis for compliance with the aluminum criterion appears to satisfy U.S. EPA. U.S. EPA established recommended ambient water quality criteria for the protection of freshwater aquatic life at 87 µg/L (four-day average) and 750 µg/L (one-hour average). The California DHS has established a secondary MCL for aluminum of 200 µg/L, with the U.S. EPA having a secondary MCL of 50-200 µg/L. The projected MECs of aluminum as total recoverable and acid-soluble exceed the most stringent freshwater aquatic life criterion and the secondary MCLs established by the State and U.S. EPA. Effluent Limitations are required for aluminum and are included in this Order based on the Basin Plan narrative toxicity objective utilizing the EPA Recommended Ambient Water Quality Criteria.

The U.S. EPA TSD recommends converting acute (one-hour average) and chronic (four-day average) aquatic life criteria to maximum daily and average monthly effluent limitations. These conversions are calculated in the following equations:

$$LTA_a = WLA_a \times \exp\left(0.5\sigma^2 - z\sigma\right)$$
$$LTA_c = WLA_c \times \exp\left(0.5\sigma_4{}^2 - z\sigma_4\right)$$
$$AMEL = LTA_c \times \exp\left(z\sigma_n - 0.5\sigma_n{}^2\right)$$
$$MDEL = LTA_a \times \exp\left(z\sigma - 0.5\sigma^2\right)$$

where

WLA_a = Acute wasteload allocation

WLA_c = Chronic wasteload allocation
LTA_a = Acute long-term average wasteload
LTA_c = Chronic long-term average wasteload
σ = Standard deviation
CV = coefficient of variation (where $\sigma^2 = \ln (CV^2 + 1)$
(CV = 0.6 where less than 10 data points are available)
AMEL = Average monthly effluent limitation
MDEL = Maximum daily effluent limitation
z = z-statistic for 95th percentile probability (AMEL) and 99th percentile probability (MDEL)
n = number of samples per month (minimum n = 4)

Using these equations, maximum daily and average monthly concentration-based Effluent Limitations for aluminum are calculated at 750 µg/L and 71 µg/L, based on the U.S. EPA Ambient Water Quality criteria for protection of aquatic life. The corresponding mass-based Effluent Limitations are 6.3 lbs/day and 0.59 lbs/day.

Ammonia
In water, un-ionized ammonia (NH_3) exists in equilibrium with the ammonium ion (NH_4^+). The toxicity of aqueous ammonia solutions to aquatic organisms is primarily attributable to the un-ionized ammonia form, with the ammonium ion being relatively less toxic. Total ammonia refers to the sum of these two forms in aqueous solutions. Analytical methods are used to directly determine the total ammonia concentration, which is then used to calculate the un-ionized ammonia (toxic) concentration in water.

U.S. EPA's Ambient Water Quality Criteria for the Protection of Freshwater Aquatic Life, for total ammonia, include acute (1-hour average) standards based on pH and chronic (30-day average) standards based on pH and temperature. U.S. EPA found that as pH increased, both the acute and chronic toxicity of ammonia increased. Salmonids were more sensitive to acute toxicity effects than other species. However, while the acute toxicity of ammonia was not influenced by temperature, it was found that invertebrates and young fish experienced increasing chronic toxicity effects with increasing temperature. U.S. EPA has presented the acute ammonia criteria in three ways: as equations, in a table, and in graphs that relate pH to ammonia concentrations. The most stringent of these criteria, based on a pH of 7.9 (the high pH of both the discharge and receiving water) and temperature of 38°C (the maximum temperature of the discharge) is the chronic criterion of 624 µg/L (as N). Ammonia was detected in the discharge at a concentration of 90 µg/L.

Sampling Dates	Reported Effluent Concentrations of Ammonia (µg/L)
2/27/02	90
5/8/02	ND

11/02*	ND

* Exact sample date unknown, analysis date 11/15/02

Using the TSD reasonable potential analysis, the calculated MEC of ammonia in the discharge is 504 µg/L, well below the most stringent criterion for ammonia (as N); therefore, no effluent limitation is required for ammonia.

Barium
U.S. EPA has found barium to potentially cause gastrointestinal disturbances and muscular weakness resulting from acute exposures at levels above the MCL of 1,000 µg/L. No Health Advisories have been established for short-term exposures. Barium has the potential to cause hypertension resulting from long-term exposures at levels above the MCL. There is no evidence that barium has the potential to cause cancer from lifetime exposures in drinking water.

The largest end use of barium metal is as a "getter" to remove the last traces of gases from vacuum and television picture tubes. It is also used to improve performance of lead alloy grids of acid batteries; as a component of grey and ductile irons; in the manufacture of steel, copper and other metals; as a loader for paper, soap, rubber and linoleum. Barium sulfate is also used in photographic papers, pigments and as a filler for rubber & resins.

Reported effluent concentrations for barium are summarized in the table below:

Sampling Dates	Reported Effluent Concentrations of Barium (µg/L)
2/27/02	17
5/8/02	ND
11/02*	ND

* Exact sample date unknown, analysis date 11/15/02

Using the TSD reasonable potential analysis, the projected MEC of barium is 95 µg/L. The Basin Plan objective for portions of the Sacramento River is 100 µg/L. This value was cited as the criterion of concern in the 10 September 2001 letter. The projected MEC does not exceed this level; therefore, no effluent limitation is required for barium.

Chloride
Sodium chloride consists of sodium ions (Na+) and chloride ions (Cl-) held together in a crystal. In water, sodium chloride breaks apart into an aqueous solution of sodium and chloride ions. This solution will conduct an electric current. Because dissolved ions in water increase conductivity, the measures of chloride ion and EC are related. Chloride was detected in the effluent at a

maximum concentration of 5.9 mg/L. Reported effluent concentrations of chloride are summarized in the table below:

Sampling Dates	Reported Effluent Concentrations of Chloride (mg/L)
2/27/02	5.8
5/8/02	5.9
11/02*	3.1

* Exact sample date unknown, analysis date 11/15/02

Using the TSD reasonable potential analysis, the projected MEC of chloride is 33 mg/L. The Agricultural Water Quality Goal for chloride is 106 mg/L. The projected MEC of chloride does not exceed the Agricultural Water Quality Goal; therefore, no effluent limitation for chloride has been established in this Order.

Iron

Iron is an abundant element in the earth's crust. It is believed to be the major component of the earth's core. Iron is rarely found uncombined in nature except in meteorites, but iron ores and minerals are abundant and widely distributed. Several studies have shown that high iron content in the body linked to cancer and heart disease. Iron can be poisonous and if high dose of iron is taken over a long period, it could result in liver and heart damage, diabetes, and skin changes.

Reported effluent concentrations of iron are summarized in the table below:

Sampling Dates	Reported Effluent Concentrations of Iron (µg/L)
2/27/02	140
5/8/02	110
11/02*	22
3/30/04	90
4/28/04	52.7

* Exact sample date unknown, analysis date 11/15/02

Using the TSD reasonable potential analysis procedure, the projected MEC of iron is calculated at 588 µg/L. The California DHS and U.S. EPA secondary MCL for iron is 300 µg/L. The projected MEC of iron exceeds the secondary MCL of 300 µg/L; therefore, there is a reasonable potential that the discharge will cause or contribute to an excursion of the Basin Plan chemical constituents objective. This Order contains a monthly average concentration-based Effluent Limitation for iron of 300 µg/L based on the Basin Plan chemical constituents objective at the

Secondary MCL. The monthly average mass-based Effluent Limitation for iron is calculated at 2.5 lbs/day.

Methyl Tert-Butyl Ether (MTBE)
MTBE (methyl tert-butyl ether) is a member of a group of chemicals commonly known as fuel oxygenates. Oxygenates are added to fuel to increase its oxygen content. MTBE is used in gasoline throughout the United States to reduce carbon monoxide and ozone levels caused by auto emissions. Releases of MTBE to ground and surface water can occur through leaking underground storage tanks and pipelines, spills, emissions from marine engines into lakes and reservoirs, and to some extent from air deposition. MTBE has been used in U.S. gasoline at low levels since 1979 to replace lead as an octane enhancer (helps prevent the engine from "knocking"). Since 1992, MTBE has been used at higher concentrations in some gasoline to fulfill the oxygenate requirements set by Congress in the 1990 Clean Air Act Amendments.

Reported effluent concentrations of MTBE are summarized in the table below:

Sampling Dates	Reported Effluent Concentrations of MTBE (µg/L)
2/27/02	ND
5/8/02	0.33
11/02*	ND

* Exact sample date unknown, analysis date 11/15/02

Using the reasonable potential analysis from the TSD, the projected MEC of MTBE is 1.8 µg/L. The Department of Health Services has developed a Secondary MCL of 5 µg/L for MTBE. The projected MEC of MTBE does not exceed the Secondary MCL; therefore, no Effluent Limitation for MTBE is included in this Order.

Nitrate
Reported effluent concentrations of nitrate are summarized in the table below:

Sampling Dates	Reported Effluent Concentrations of Nitrate (as N) (µg/L)
2/27/02	110
5/8/02	460
11/02*	ND

* Exact sample date unknown, analysis date 11/15/02

Using the TSD reasonable potential analysis, the projected MEC of nitrate is 2,576 µg/L. The Primary MCL for nitrate is 10,000 µg/L (as N). The projected MEC does not exceed the Primary MCL; therefore, no effluent limitation is required for nitrate.

Sulfate

Sulfate is a substance that occurs naturally in drinking water. Health concerns regarding sulfate in drinking water have been raised because of reports that diarrhea may be associated with the ingestion of water containing high levels of sulfate. Of particular concern are groups within the general population that may be at greater risk from the laxative effects of sulfate when they experience an abrupt change from drinking water with low sulfate concentrations to drinking water with high sulfate concentrations.

Reported effluent concentrations of sulfate are summarized in the table below:

Sampling Dates	Reported Effluent Concentrations of Sulfate (µg/L)
2/27/02	8700
5/8/02	8900
11/02*	7600

* Exact sample date unknown, analysis date 11/15/02

The California Secondary MCL for sulfate is 250 mg/l. The projected MEC of sulfate is 50 mg/L, which does not exceed the Secondary MCL; therefore, no effluent limitation is required for sulfate.

Chlorine
The Basin Plan states, "*All waters shall be maintained free of toxic substances in concentrations that produce detrimental physiological responses in human, plant, animal, or aquatic life*." U.S. EPA has developed Recommended Ambient Water Quality criteria for the protection of freshwater aquatic life. U.S. EPA's recommended acute (1-hour average) and chronic (4-day average) aquatic life criteria for chlorine are 19 µg/L and 11 µg/L respectively. Water chemistry analyses conducted in conjunction with chronic toxicity testing in 2000, 2001, and 2002 have indicated total chlorine concentrations in samples of effluent ranging from below detection to 0.3 mg/L
(300 µg/L). All but one sample exceeded both the acute and chronic criteria. The chlorine in bioassay samples has had a significant time to degrade while the sample was transported to the laboratory without measures designed to preserve chlorine. Chlorine volatilizes quickly and U.S. EPA recommends that samples be analyzed immediately with a minimal holding time. The actual effluent chlorine concentration was reasonably higher than the level detected at the off-site laboratory. The total residual chlorine discharged from the facility has the reasonable potential to cause or contribute to an in-stream excursion above the Basin Plan narrative toxicity objective. Based on this information, this Order includes effluent limitations for total residual chlorine of 0.01 mg/L as a 4-day average and 0.02 mg/L as a 1-hour average.

Chlorine limitations shall become effective by **1 August 2005**. Additionally, all but one of the data points exceeded the effluent limitation for chlorine, which indicates the potential for

continuous violation of the effluent limit. To insure compliance, continuous monitoring for chlorine shall be provided.

Naphthalene
Analytical laboratory results submitted by the Discharger indicate that naphthalene was detected in 1 of 3 effluent samples. The maximum detected effluent concentration of naphthalene was reported at 4.5 µg/l. Naphthalene is included in the CTR. However, no CTR criteria for naphthalene have yet been established. Therefore, the reasonable potential analysis for non-CTR constituents is applied to naphthalene to determine whether naphthalene causes or has a reasonable potential to cause an exceedance of a water quality criterion or objective. U.S.EPA Integrated Risk Information System (IRIS) includes a reference dose as a drinking water level of 14 µg/l for naphthalene. Using the TSD reasonable potential analysis, the projected MEC of naphthalene is calculated at 25 µg/l. The projected MEC of naphthalene exceeds the U.S. EPA IRIS reference dose. Because beneficial uses of the receiving waters include municipal and domestic supply, the discharge from the Sierra Plant has a reasonable potential to cause an exceedance of the Basin Plan narrative toxicity objective and the U.S. EPA IRIS reference dose as a drinking water level for naphthalene. To protect the municipal and domestic water supply beneficial use, this Order includes a monthly average concentration-based Effluent Limitation for naphthalene based on the Basin Plan narrative toxicity objective and the US.EPA IRIS reference dose.

Manganese
Analytical laboratory results submitted by the Discharger indicate that manganese was detected in 1 of 3 effluent samples. The maximum detected effluent concentration of manganese was reported at 74 µg/l. U.S. EPA and the Department of Health Service established a Secondary MCL of 50 µg/l for manganese. Using the TSD reasonable potential analysis, the projected MEC of manganese is calculated at 414 µg/l. The maximum detected effluent concentration of manganese exceeds the Secondary MCL. To protect the municipal and domestic water supply beneficial use, this Order includes a monthly average concentration-based Effluent Limitation for manganese based on the Basin Plan chemical constituents objective at the Secondary MCL of 50 µg/l.

Persistent Chlorinated Hydrocarbon Pesticides
Analytical laboratory results submitted by the Discharger indicate that 2,4-D and dalapon have been detected in the effluent. 2,4-D was detected at an estimated concentration (reported as "J Flag") of 0.26 µg/l. The Method Detection Limit (MDL) and the Reporting Limit (RL) for 2,4-D were reported at 0.098 µg/l and 9.5 µg/l, respectively. Dalapon was detected at an estimated concentration (reported as "J Flag") of 17 µg/l. The Method Detection Limit (MDL) and the Reporting Limit (RL) for dalapon were reported at 4.3 µg/l and 190 µg/l, respectively.

The Basin Plan includes a water quality objective for pesticides on page III-6.0, which states: "*No individual pesticide or combination of pesticides shall be present in concentrations that adversely affect beneficial uses*" and that " *Total identifiable persistent chlorinated hydrocarbon pesticides shall not be present in the water column at concentrations detectable within the accuracy of analytical methods approved by the Environmental Protection Agency or the Executive Officer*".

California DHS established a Primary MCL of 70 µg/l and 200 µg/l for 2,4-D and dalapon, respectively. For the purposes of this Order, the list of persistent chlorinated hydrocarbon pesticides will include but not be limited to the following:

Aldrin	Endosulfan I (Alpha)
Alpha BHC	Endosulfan II (Beta)
Beta BHC	Endosulfan Sulfate
Gamma BHC (Lindane)	Endrin
Delta BHC	Endrin Aldehyde
Captan	Heptachlor
Chlordane	Heptachlor Epoxide
2,4-D	Isodrin (an isomer of Aldrin)
2,4-DB	Kepone (Chlordecone)
2,4-D compounds	MCPA
DDD (TDE)	MCPP
DDE	Methoxychlor
DDT	Mirex
Dalapon	PCNB
Dicamba	Pentachlorophenol
Dichloran	Perthane
Dichloroprop	Strobane
Dicofol	2,4,5-T
Dieldrin	2,4,5,TP (Silvex)
Dinoseb	2,4,5-T compounds
	Toxaphene

The Basin Plan objective is more restrictive than the drinking water quality standards for persistent chlorinated hydrocarbon pesticides. Therefore, the Basin Plan objective shall be used to establish effluent limitation. The presence of 2,4-D and dalapon in the effluent indicates that the discharge from the Sierra Plant has a reasonable potential to cause or contribute to an exceedance of Basin Plan objectives for persistent chlorinated hydrocarbon pesticides. This Order includes an Effluent Limitation for persistent chlorinated hydrocarbon pesticides based on the Basin Plan objective.

Total Trihalomethanes and Chloroform

Chloroform was detected in two of the three effluent samples at a maximum concentration of 16 µg/l. Chloroform is included in the CTR. However, no CTR criteria for chloroform have yet been established. Therefore, the reasonable potential analysis for non-CTR constituents is applied to chloroform to determine whether chloroform causes or has a reasonable potential to cause an exceedance of a water quality criterion or objective. Using the TSD reasonable potential analysis, the projected MEC of chloroform is calculated at 90 µg/l.

The Cal/EPA Office of Environmental Health Hazard Assessment (OEHHA) has published the Toxicity Criteria Database, which contains cancer potency factors for chemicals, including

chloroform, that have been used as a basis for regulatory actions by the boards, departments and offices within Cal/EPA. The OEHHA cancer potency value for oral exposure to chloroform is 0.031 milligrams per kilogram body weight per day (mg/kg-day). By applying standard toxicologic assumptions used by OEHHA and U.S. EPA in evaluating health risks via drinking water exposure of 70 kg body weight and 2 liters per day water consumption, this cancer potency factor is equivalent to a concentration in drinking water of 1.1 μg/L (ppb) at the one-in-a-million cancer risk level. This risk level is consistent with that used by the DHS to set *de minimus* risks from involuntary exposure to carcinogens in drinking water in developing MCLs and Action Levels and by OEHHA to set negligible cancer risks in developing Public Health Goals for drinking water. The one-in-a-million cancer risk level is also mandated by U.S.EPA in applying human health protective criteria contained in the NTR and the CTR to priority toxic pollutants in California surface waters. Since no drinking water intakes are likely to exist where the ingestion of water is equivalent to the level used in development of the cancer risk assessment downstream of the discharge from the Sierra Plant; therefore, setting a chloroform effluent limitation based on a cancer risk analysis is not appropriate. Although application of the cancer risk criteria is inappropriate, protection of the municipal water supply is necessary and appropriate. The Primary MCL for total trihalomethanes, the sum of bromoform, bromodichloromethane, chloroform, and dibromochloromethane, is 80 μg/l. The projected MEC of chloroform exceeds the Primary MCL. It indicates that the discharge from the Sierra Plant does have a reasonable potential to cause an in-stream excursion above the water quality objective for municipal uses. Therefore, an Effluent Limitation for total trihalomethanes is included in this Order and is based on the Basin Plan objective for municipal use. If U.S. EPA or the State Board develops a water quality objective for chloroform and/or total trihalomethanes, this Order may be reopened and a new Effluent Limitation established.

pH

In accordance with Basin Plan requirements, the previous Order established a discharge pH range of not less than 6.5 or greater than 8.5. Effluent monitoring data from 1998-2002 demonstrate that the pH of the discharge has ranged from 6.0 to 8.5 standard pH units with a high value of 8.5 (March 2002) and one value lower than the lower limit of 6.0 (5.95 in October 2002). The facility process water is discharged into an unnamed tributary to Pleasant Grove Creek and has resulted in the formation of a freshwater marsh at the point of discharge. At times, the discharge is the only flow in the unnamed tributary to Pleasant Grove Creek and Pleasant Grove Creek. The emergent marsh contains aquatic habitat, and the unnamed tributary qualifies as waters of the United States. To insure that the discharge from this facility is not a detriment to the aquatic life in the emergent marsh, influent into the emergent marsh shall not have a pH less than 6.5 or greater than 8.5.

Toxicity

The Basin Plan states that "*All waters shall be maintained free of toxic substances in concentrations that produce detrimental physiological responses in human, plant, animal, or aquatic life. This objective applies regardless of whether the toxicity is caused by a single substance or the interactive effect of multiple substances….The survival of aquatic life in surface waters subjected to a waste discharge or other controllable water quality factors shall not be less*

than that for the same water body in areas unaffected by the waste discharge…." The Basin Plan requires that "*as a minimum, compliance with this objective…shall be evaluated with a 96-hour bioassay*." This Order requires both acute and chronic toxicity monitoring to evaluate compliance with this water quality objective. The Basin Plan also states: "…*effluent limits based upon acute biotoxicity tests of effluents will be prescribed where appropriate*;…" Effluent limitations for acute toxicity are included in this Order.

The results of chronic whole effluent toxicity testing from three samples collected in November 2000, December 2001, and November 2002 and submitted to the Regional Board by the Discharger indicate the potential for adverse effects at various effluent concentrations.

For the November 2000 sample, *Selanastrum capricornutum* growth was adversely affected at the 12.5% concentration of effluent when compared to control water from Pleasant Grove Creek. Statistically significant effects on *Pimephales promelas* growth were observed at the 100% effluent concentration vs. creek water.

For the December 2001 sample, a statistically significant effect on *Selanastrum capricornutum* growth was observed at the 50% concentration of effluent when compared to the creek water. Statistically significant effects on *Pimephales promelas* growth were observed at the 75% effluent concentration vs. creek water.

For the November 2002 sample, statistically significant effects on *Ceriodaphnia dubia* reproduction were observed at the 100% effluent concentration when compared to the creek water. *Selanastrum capricornutum* growth was adversely affected at the 75% concentration of effluent when compared to the creek water.

With a low available dilution, it appears that discharges from the facility may cause adverse effects on aquatic organisms. Accordingly, this Order increases the frequency of chronic toxicity monitoring to quarterly. If a trend of toxicity is observed, the Discharger shall be required to develop and conduct a toxicity identification evaluation (TIE) and toxicity reduction evaluation (TRE) plan that includes a schedule for plan implementation.

Temperature

There was high variation in the effluent temperature range during the permit term (48° to 100° F), which potentially could have adverse effects aquatic life in the emergent marsh and the unnamed tributary. These effluent temperature values were measured at the point of discharge into the emergent marsh. The emergent marsh has the capability to dissipate heat, but water temperatures have not been measured at the southern point of the emergent marsh. Warm water fish species, specifically bass and blue gill, have been identified at this point. An aquatic organism survey and assessment of the emergent marsh, the unnamed tributary to Pleasant Grove Creek, or downstream waters has not been conducted to determine the presence of warm and cold-water species. The unnamed tributary to Pleasant Grove Creek and Pleasant Grove Creek currently are ephemeral streams. The discharge from the City of Roseville's new Pleasant Grove Creek Wastewater Treatment Plant discharge into Pleasant Grove Creek will change the character of the receiving

stream and increase the likelihood of cold-water fish migration. Similar Creeks in the area, such as Dry Creek and Auburn Ravine, are known to support cold-water fish species. Consultation with the California DFG regarding the presence or absence of cold-water fish species in Pleasant Grove Creek has been unproductive to date. NPDES permits for the nearby City of Roseville's Dry Creek Wastewater Treatment Plant and for the City of Lincoln Wastewater Treatment Plant have site specific temperature limitations to protect cold-water fish species of 60^{o} F (daily average), 62^{o} F (daily maximum) and 58^{o} F (monthly average), 64^{o} F (any time from 1 October through 31 May), respectively.

The receiving stream at the point of discharge is the headwaters for the unnamed tributary to Pleasant Grove Creek. An upstream sampling point is not available to determine the thermal impacts of the discharge. The discharge flows through open areas, prior to entering downstream waters, and the thermal impacts from any discharges entering the drainage course could mask actual impacts of the discharge on downstream waters. The thermal impacts of the discharge have already been assessed and the proposal to eliminate the discharge is largely based on resolving the elevated temperature issues.

REASONABLE POTENTIAL ANALYSIS FOR EFFLUENT LIMITATIONS – CTR CONSTITUENTS

The U.S. Environmental Protection Agency (U.S. EPA) adopted the *National Toxics Rule* (NTR) on 5 February 1993 and the *California Toxics Rule* (CTR) on 18 May 2000. These Rules contain water quality standards applicable to this discharge. On 2 March 2000, the SWRCB adopted the *Policy for Implementation of Toxics Standards for Inland Surface Waters, Enclosed Bays, and Estuaries of California* (known as the State Implementation Policy or SIP), which contains guidance on implementation of the NTR and CTR.

On 10 September 2001, the Executive Officer issued a letter, pursuant to California Water Code, Section 13267, requiring the Discharger to prepare a technical report assessing effluent and receiving water quality. This letter required sampling for NTR, CTR, and additional constituents to determine the water quality impacts of the discharge. The Discharger provided receiving water and effluent monitoring data for three quarters in 2002 (February, May and November). Section 1.3 of the SIP requires that the Regional Board impose water quality-based effluent limitations for a priority pollutant if (1) the maximum effluent concentration (MEC) is greater than the most stringent CTR criterion or applicable site-specific Basin Plan objective, or (2) the ambient background concentration is greater than the CTR criterion or applicable site-specific Basin Plan objective, or (3) other information is available to determine that a water quality-based effluent limitation is necessary to protect beneficial uses. The SIP also provides procedures for calculating water quality-based effluent limitations. Where effluent limitations are required, mass-based effluent limitations are calculated from concentration-based effluent limitations using the following equation:

$$X\frac{\mu g}{l}\times 10^{-6}\frac{g}{\mu g}\times 3.79\frac{l}{gal}\times Flow\frac{gals}{day}\times 0.0022\frac{lbs}{g}=Y\frac{lbs}{day} \qquad (*)$$

where

X = Concentration-based Effluent Limitation
Y = Mass-based Effluent Limitation

Dichlorobromomethane
Dichlorobromomethane is a colorless, nonflammable liquid. Most dichlorobromomethane is formed as a by-product when chlorine is added to wastewater to kill bacteria. The California Department of Health Services (DHS) has determined that dichlorobromomethane is reasonably anticipated to be a human carcinogen.

Data provided by the Discharger in response to the 10 September 2001 letter indicate that dichlorobromomethane was detected in the facility's effluent at a maximum concentration of 1.2 µg/L in February 2002. Reported effluent concentrations of dichlorobromomethane are summarized in the table below:

Sampling Dates	Reported Effluent Concentrations of Dichlorobromomethane (µg/L)	Reported Receiving Water Concentrations of Dichlorobromomethane (µg/L)
2/27/02	1.2	ND
5/8/02	ND	1.1
11/02*	1.1	ND

* Exact sample date unknown, analysis date 11/15/02

U.S. EPA human health CTR criteria for dichlorobromomethane are 0.56 µg/l (for waters from which both water and aquatic organisms are consumed) and 46 µg/l (for waters from which only aquatic organisms are consumed) as a 30-day average. Detected concentrations of dichlorobromomethane exceed the CTR criterion for waters from which both water and aquatic organisms are consumed. Based on this information, dichlorobromomethane is discharged from the facility at levels that cause, have the reasonable potential to cause, or contribute to an excursion of applicable water quality standards. Accordingly, Effluent Limitations for dichlorobromomethane are included in this Order.

The SIP includes methodology for establishing effluent limitations for priority toxic pollutants included in the NTR and CTR. The SIP states that an average monthly effluent limitation (AMEL) established for protection of human health be set equal to the effluent concentration allowance for human health protection (ECA_{hh}). In the case of a discharge with no dilution allowance, the ECA equals the CTR human health criterion. The SIP also includes the following equation for calculating the maximum daily effluent limitation (MDEL) (with the multiplier provided in the SIP) when the applicable criteria are for the protection of human health:

$$MDEL_{hh} = ECA * \left(\frac{MDEL}{AMEL} \right)_{multiplier}$$

where

ECA_{hh} = Effluent concentration allowance for the protection of human health
AMEL = Average monthly effluent limitation (for the protection of human health) = ECA_{hh}
MDEL = Maximum daily effluent limitation (for the protection of human health)

Based on the SIP requirements and using the equations above, the average monthly Effluent Limitations are 0.56 µg/L and 0.0047 lbs/day and the maximum daily Effluent Limitations for dichlorobromomethane are 1.1 µg/L and 0.0092 lbs/day. A time schedule has been included in this Order for compliance with the dichlorobromomethane limitation.

Bis(2-ethylhexyl)phthalate
Bis(2-ethylhexyl)phthalate is a colorless oily liquid that is extensively used as a plasticizer in a wide variety of industrial, domestic, and medical products. It is an environmental contaminant and has been detected in groundwater, surface water, drinking water, air, soil, plants, fish, and animals.

Bis(2-ethylhexyl)phthalate is in polyvinyl chloride plastic products like toys, vinyl upholstery, shower curtains, adhesives, and coatings. Bis(2-ethylhexyl)phthalate is also used in inks, pesticides, cosmetics, and vacuum pump oil. Bis(2-ethylhexyl)phthalate is insoluble in water, miscible with mineral oil and hexane, and soluble in most organic solvents. It is easily dissolved in body fluids such as saliva and plasma. Bis(2-ethylhexyl)phthalate is a combustible liquid; it may burn, but does not readily ignite. It produces poisonous gas in a fire. When heated to decomposition, it emits acrid smoke.

The California DHS has determined that bis(2-ethylhexyl)phthalate may reasonably be anticipated to be a carcinogen. Repeated exposure to bis(2-ethylhexyl)phthalate may affect the kidneys and liver, and may cause numbness and tingling in the arms and legs.

The existing Waste Discharge Requirements, Order No. 97-112, did not include effluent limitations for bis(2-ethylhexyl)phthalate; however, it did require that the Discharger complete a study of the effects of bis(2-ethylhexyl)phthalate on surface waters. A time schedule for compliance with this Provision was included this Order. The Discharger submitted a report in August 1998 indicating that bis(2-ethylhexyl)phthalate was detected in several samples during a one-month sample period. Additional sampling was conducted and a second report was submitted in May 1999. This report indicated that bis(2-ethylhexyl)phthalate was not detected in any of the samples at the lowest practicable detection limits. The Regional Board did not reopen the NPDES Order at that time to include effluent limits for bis(2-ethylhexyl)phthalate; however, the Board did recommend that the Discharger continue periodic sampling and analysis to determine and eliminate the source. In the *May 1999 Final Water Quality Sampling Report: Bis(2-*

ethylhexyl)phthalate, the Discharger indicated that the source of the contamination had been identified and that bis(2-ethylhexyl)phthalate was no longer present in the discharge. Data provided by the Discharger in response to the 10 September 2001 letter indicate that bis(2-ethylhexyl)phthalate was detected at a maximum effluent concentration of 9.0 µg/L (November 2002). Reported effluent concentrations of bis(2-ethylhexyl)phthalate are summarized in the table below:

Sampling Dates	Reported Effluent Concentrations of Bis(2-ethylhexyl)phthalate (µg/L)	Reported Receiving Water Concentrations of Bis(2-ethylhexyl)phthalate (µg/L)
2/27/02	ND	ND
5/8/02	ND	ND
11/02*	9.0	3.0

* Exact sample date unknown, analysis date 11/15/02

U.S. EPA human health NTR criteria for bis(2-ethylhexyl)phthalate are 1.8 µg/l (for waters from which both water and aquatic organisms are consumed) and 5.9 µg/l (for waters from which only aquatic organisms are consumed) as a 30-day average. The maximum detected concentration of bis(2-ethylhexyl)phthalate exceeds human health NTR criteria. The presence of bis(2-ethylhexyl)phthalate in an effluent sample collected in 2002 indicates that the source of bis(2-ethlyhexyl)phthalate has not yet been eliminated and that bis(2-ethylhexyl)phthalate is discharged from the facility at levels that cause, have the reasonable potential to cause, or contribute to an excursion of applicable water quality standards. Accordingly, Effluent Limitations for bis(2-ethylhexyl)phthalate are included in this Order.

The SIP includes methodology for establishing effluent limitations for priority toxic pollutants included in the NTR and CTR. The SIP states that an average monthly effluent limitation (AMEL) established for protection of human health be set equal to the effluent concentration allowance for human health protection (ECA_{hh}). In the case of a discharge with no dilution allowance, the ECA equals the CTR human health criterion. The SIP also includes the following equation for calculating the maximum daily effluent limitation (MDEL) (with the multiplier provided in the SIP) when the applicable criteria are for the protection of human health:

$$MDEL_{hh} = ECA * \left(\frac{MDEL}{AMEL} \right)_{multiplier}$$

where

ECA_{hh} = Effluent concentration allowance for the protection of human health
AMEL = Average monthly effluent limitation (for the protection of human health) = ECA_{hh}
MDEL = Maximum daily effluent limitation (for the protection of human health)

Based on the SIP requirements and using the equations above, the average monthly Effluent Limitations for bis(2-ethylhexyl)phthalate are 1.8 µg/L and 0.015 lbs/day and the maximum daily Effluent Limitations for bis(2-ethylhexyl)phthalate are 3.6 µg/L and 0.03 lbs/day. A time schedule has been included in this Order for compliance with the bis(2-ethylhexyl)phthalate limitation.

Chromium (III)
Chromium is a naturally occurring element found in rocks, animals, plants, soil, and in volcanic dust and gases. Total chromium measures the combined levels of trivalent chromium (chromium III) and hexavalent chromium (chromium VI). Chromium (III) occurs naturally in the environment and is an essential nutrient. Chromium (VI) is generally produced by industrial processes, such as chrome plating, dyes and pigments, leather tanning, and wood preserving. There is evidence to suggest that chromium (VI) may be converted to chromium (III) in the human body; particularly in the acidic environment of the digestive system. In addition, chromium (III) is the most stable form. Therefore, total chromium in the effluent is likely to be in the chromium (III) form. Based on these considerations, water quality standards for chromium (III) are used to evaluate whether detected concentrations of chromium in the discharge from the facility cause or contribute to an exceedance of a water quality standard.

Data submitted by the Discharger provides monitoring results for chromium (total) and chromium (VI). Estimated concentrations of chromium (III) are calculated by subtracting the difference of chromium (VI) concentration from the chromium (total) concentration, however there were no detected concentrations of chromium (VI) in the effluent, therefore no calculations were necessary.

U.S. EPA developed hardness-dependent freshwater aquatic life CTR criteria for chromium and recommended factors to convert dissolved concentrations to total recoverable concentrations. The dissolved concentration is divided by the conversion factor to convert it to a total recoverable concentration. Conversion factors for chromium (III) in freshwater are 0.316 and 0.860 for acute and chronic criteria, respectively. The criterion continuous concentration (four-day average) and the criterion maximum concentration (one-hour average) for chromium are calculated as total recoverable concentrations based on a receiving water hardness of 140 mg/L (as $CaCO_3$). This hardness value is the minimum observed hardness of the receiving water from the data provided by the Discharger in response to the Regional Board's 10 September 2001 letter.

$$CCC = e\{0.819[\ln(hardness)]+1.561\} \qquad CMC = e\{0.819[\ln(hardness)]+3.688\}$$

where

CCC = criteria continuous concentration (four-day average)
CMC = criteria maximum concentration (one-hour average)

A comparison of detected concentrations and the applicable criteria is presented as follows:

Sampling Dates	Detected Concentrations of Chromium (III) (µg/L) (Total Recoverable)	Reported Receiving Water Concentrations of Chromium (III) (µg/L) (Total Recoverable)	CCC (µg/L)	CMC (µg/L)
2/27/02	0.56	1.4	272.7	2287.5
5/8/02	1.9	1.4	272.7	2287.5
11/02	1.2	1.2	272.7	2287.5

* Exact sample date unknown, analysis date 11/15/02

Detected concentrations of chromium (III) do not exceed freshwater aquatic life CTR criteria. Therefore, no Effluent Limitation for chromium (III) is included in this Order.

Copper

Data submitted by the Discharger indicate that copper was detected in each of three effluent samples as summarized in the table below. U.S. EPA developed hardness-dependent freshwater aquatic life CTR criteria and included these criteria in the CTR. The CTR criteria for copper are presented as dissolved concentrations. U.S. EPA also recommended factors to convert dissolved concentrations to total recoverable concentrations. The conversion factor for copper in fresh water is 0.960 for both acute and chronic criteria. The continuous concentration (four-day average) and the maximum concentration (one-hour average) criteria for copper below were calculated in total recoverable concentrations based on a hardness of 140 mg/L (as $CaCO_3$) of the receiving water.

$$CCC = e^{\{0.8545[\ln(hardness)]-1.702\}} \qquad CMC = e^{\{0.9422[\ln(hardness)]-1.700\}}$$

where

CCC = criteria continuous concentration (four-day average)
CMC = criteria maximum concentration (one-hour average)

A comparison of detected concentrations and the applicable criteria is presented as follows:

Sampling Dates	Reported Effluent Concentrations of Copper (µg/L) (Total Recoverable)	Reported Receiving Water Concentrations of Copper (µg/L) (Total Recoverable)	CCC (µg/L) (Total Recoverable)	CMC (µg/L) (Total recoverable)
2/27/02	2.9	1.6	12.4	19.2
5/8/02	3	1.6	12.4	19.2
11/02*	1.8	2.0	12.4	19.2

* Exact sample date unknown, analysis date 11/15/02

In addition to these criteria, the U.S. EPA human health CTR criterion is 1,300 µg/L (for the consumption of water and aquatic organisms).

The maximum detected concentration of copper does not exceed the CTR criteria. Therefore, no Effluent Limitation for copper is included in this Order.

Lead

Data submitted by the Discharger indicate that lead was detected once in the effluent at a concentration of 0.093 µg/L and once in the receiving water at a concentration of 0.42 µg/L. U.S. EPA developed hardness-dependent freshwater aquatic life CTR criteria for lead and recommended conversion factors (CF) to convert between dissolved concentrations and total recoverable concentrations. The conversion factors, based on the hardness, for chronic and acute condition in freshwater are calculated using the following equations:

$$CF_C = \left(1.46203 - \left\{\left[\ln\left(hardness\right)\right] \times 0.145712\right\}\right)$$

$$CF_A = \left(1.46203 - \left\{\left[\ln\left(hardness\right)\right] \times 0.145712\right\}\right)$$

where

CF_C = conversion factor for chronic criteria
CF_A = conversion factor for acute criteria

The criterion continuous concentration (four-day average) and the criterion maximum concentration (one-hour average) for lead as total recoverable concentrations are 4.88 µg/L and 125.3 µg/L and were determined based on a hardness of 140 mg/L (as $CaCO_3$) of the receiving water using the following equations:

$$CCC = e^{\left\{1.273\left[\ln\left(hardness\right)\right] - 4.705\right\}} \qquad CMC = e^{\left\{1.273\left[\ln\left(hardness\right)\right] - 1.460\right\}}$$

where

CCC = criteria continuous concentration (four-day average)
CMC = criteria maximum concentration (one-hour average)

A comparison of detected concentrations and the applicable criteria is presented as follows:

Sampling Dates	Reported Effluent Concentrations of Lead (µg/L) (Total Recoverable)	Reported Receiving Water Concentrations of Lead (µg/L) (Total Recoverable)	CCC (µg/L) (Total Recoverable)	CMC (µg/L) (Total recoverable)

2/27/02	ND	ND	4.88	125.3
5/8/02	ND	ND	4.88	125.3
11/02*	0.093	0.42	4.88	125.3

* Exact sample date unknown, analysis date 11/15/02

All detected concentrations of lead are below all CTR criteria. Therefore, no Effluent Limitation for lead is included in this Order.

Mercury

Mercury is a neurotoxin, meaning it affects the nervous system. The three most common forms of mercury are elemental, inorganic, and methylmercury. Mercury combines with other elements, such as chlorine, sulfur, or oxygen, to form inorganic mercury compounds or "salts," which are usually white powders or crystals. Mercury also combines with carbon to make organic mercury compounds. The most common form of mercury is methylmercury. Mainly microscopic organisms in the water and soil produce methylmercury. More mercury in the environment can increase the amounts of methylmercury that these small organisms make. The three forms of mercury can all produce adverse health effects at sufficiently high doses. U.S. EPA has determined that mercuric chloride and methylmercury are possible human carcinogens. Methylmercury and metallic mercury vapors are more harmful than other forms, because more mercury in these forms reaches the brain. Exposure to high levels of metallic, inorganic, or organic mercury can permanently damage the brain, kidneys, and developing fetus. Effects on brain functioning may result in irritability, shyness, tremors, changes in vision or hearing, and memory problems. Short-term exposure to high levels of metallic mercury vapors may cause effects including lung damage, nausea, vomiting, diarrhea, increases in blood pressure or heart rate, skin rashes, and eye irritation. U.S. EPA has determined that eating mercury-contaminated fish is the primary route of exposure to mercury for most people.

Mercury was detected in both the effluent and receiving water samples taken by the Discharger. Reported effluent and receiving water concentrations for mercury are summarized in the following table:

Sampling Dates	Reported Effluent Concentrations of Mercury (µg/L)	Reported Receiving Water Concentrations of Mercury (µg/L)
2/27/02	0.0044	0.0014
5/8/02	ND	0.0019
11/02*	0.0015	0.0039

* Exact sample date unknown, analysis date 11/15/02

Human health CTR criteria for mercury are 0.05 µg/l (for waters from which both water and aquatic organisms are consumed) and 0.051 µg/ (for waters from which only aquatic organisms are consumed) as a 30-day average. In 40 CFR Part 131, U.S. EPA acknowledges that this human health criterion may not be protective of some aquatic or endangered species. In the CTR, U.S.

EPA reserved the mercury criteria for freshwater aquatic life protection and may adopt new criteria at a later date.

Detected effluent concentrations of mercury reported by the Discharger do not exceed CTR criteria. Therefore, no Effluent Limitation for mercury is included in this Order.

Methylene Chloride
Methylene chloride is a colorless liquid with a mild, sweet odor. Another name for it is dichloromethane. Methylene chloride does not occur naturally in the environment. Methylene chloride is used as an industrial solvent and as a paint stripper. It may also be found in some aerosol and pesticide products and is used in the manufacture of photographic film.

Data submitted by the Discharger indicate that methylene chloride was detected in the effluent at a maximum concentration of 2.4 µg/L. Reported effluent and receiving water concentrations for methylene chloride are summarized in the table below:

Sampling Dates	Reported Effluent Concentrations of Methylene Chloride (µg/L)	Reported Receiving Water Concentrations of Methylene Chloride (µg/L)
2/27/02	2.4	0.88
5/8/02	0.33	ND
11/02*	ND	0.29

* Exact sample date unknown, analysis date 11/15/02

Human health CTR criteria for methylene chloride are 4.7 µg/l (for waters from which both water and aquatic organisms are consumed) and 1,600 µg/ (for waters from which only aquatic organisms are consumed) as a 30-day average. All detected concentrations of methylene chloride are below the human health CTR criteria. Therefore, no effluent limitation for methylene chloride is included in this Order.

Nickel
Data submitted by the Discharger indicate that nickel was detected in one of three effluent samples and in all three receiving water samples. U.S. EPA developed hardness-dependent CTR criteria for the protection of freshwater aquatic life and recommended factors to convert dissolved concentrations to total recoverable concentrations. The conversion factors for nickel in freshwater are 0.998 and 0.997 for acute and chronic criteria, respectively. The criterion continuous

concentration (four-day average) and the criterion maximum concentration (one-hour average) for nickel in total recoverable concentrations are 69.3 µg/L and 623.7 µg/L, respectively, based on a hardness of 140 mg/L (as $CaCO_3$) of the receiving water, and calculated using the following equations:

$$CCC = e^{\{0.846[\ln(hardness)]+0.0584\}} \qquad CMC = e^{\{0.846[\ln(hardness)]+2.255\}}$$

where

CCC = criterion continuous concentration (four-day average)
CMC = criterion maximum concentration (one-hour average)

A comparison of detected concentrations and the applicable criteria for nickel is presented as follows:

Sampling Dates	Reported Effluent Concentrations of Nickel (µg/L) (Total Recoverable)	Reported Receiving Water Concentrations of Nickel (µg/L) (Total Recoverable)	CCC (µg/L) (Total Recoverable)	CMC (µg/L) (Total recoverable)
2/27/02	0.77	1.6	69.3	623.7
5/8/02	ND	2.0	69.3	623.7
11/02*	ND	2.3	69.3	623.7

* Exact sample date unknown, analysis date 11/15/02

In addition to these criteria, the U.S. EPA human health CTR criteria for nickel are 610 µg/L (for waters that are sources of drinking water and from which aquatic organisms may be consumed) and 4,600 µg/L (for waters from which only aquatic organisms are consumed) as a 30-day average.

Detected concentrations of nickel do not exceed CTR criteria; therefore, no effluent limitation for nickel is included in this Order.

Selenium
Exposure to high doses of selenium can be toxic. The most frequently reported symptoms of selenosis (chronic selenium toxicity) are hair and nail brittleness and loss. Other symptoms may include gastrointestinal disturbances, skin rashes, a garlic breath odor, fatigue, irritability, and nervous system abnormalities.

Data submitted by the Discharger indicate that selenium was detected in one of three effluent samples and two of three receiving water samples. Reported effluent and receiving water concentrations for selenium are summarized in the following table:

Sampling Dates	Reported Effluent Concentrations of Selenium (µg/L)	Reported Receiving Water Concentrations of Selenium (µg/L)
2/27/02	0.83	1.1
5/8/02	ND	ND
11/02*	ND	1.3

* Exact sample date unknown, analysis date 11/15/02

U.S. EPA established freshwater aquatic life CTR criteria for selenium. The criterion continuous concentration (four-day average) and maximum concentration (one-hour average) for selenium are 5.0 µg/l and 20 µg/l, respectively.

The maximum detected concentration of selenium does not exceed freshwater aquatic life CTR criteria. Therefore, no Effluent Limitation for selenium is included in this Order.

Interim Effluent Limitations for CTR Constituents
Section 2.1 of the SIP provides that: "*Based on an existing discharger's request and demonstration that it is infeasible for the discharger to achieve immediate compliance with a CTR criterion, or with an effluent limitation based on a CTR criterion, the RWQCB may establish a compliance schedule in an NPDES permit.*" Section 2.1 further states that compliance schedules may be included in NPDES permits provided that the following justification has been submitted: …"*(a) documentation that diligent efforts have been made to quantify pollutant levels in the discharge and the sources of the pollutant in the waste stream; (b) documentation of source control measures and/or pollution minimization measures currently underway or completed; (c) a proposal for additional or future source control measures, pollutant minimization actions, or waste treatment (i.e., facility upgrades); and (d) a demonstration that the proposed schedule is as short as practicable*." In this Order, final water quality based effluent limitations for dichlorobromomethane and bis(2-ethylhexyl)phthalate become effective on **1 June 2007** if the Discharger fails to eliminate the discharge as is proposed in the Report of Waste Discharge, or on **29 April 2010**, if regulatory requirements or unexpected equipment issues require maintenance of the discharge beyond 1 June 2007. In the event the discharge is not eliminated by 1 June 2007, the Discharger shall be required to submit a workplan that proposes additional measures that will address potential impacts of the discharge and, once approved, will have to implement that workplan promptly thereafter.

EFFLUENT LIMITATIONS REMOVED FROM ORDER

Phenols
Phenolic compounds are a group of chlorinated and nonchlorinated compounds that include a phenolic component. Order No. 97-112 included technology-based Effluent Limitations for phenols calculated based upon best professional judgment. These limits are 0.60 mg/L and 5 lbs/day (30-day average) and 3.4 mg/L and 28.4 lbs/day (daily maximum). Order No. 97-112 does not provide the basis for the effluent limitations for phenols. Since the issuance of Order 97-112,

the CTR was implemented. U.S. EPA human health CTR criteria for phenol are 21 mg/l (for waters from which both water and aquatic organisms are consumed) and 4,600 mg/l (for waters from which only aquatic organisms are consumed) as a 30-day average. There are additional CTR criteria for other phenolic compounds. CTR monitoring in 2002 indicate no detectable levels of any of the CTR phenolic compounds in the effluent or at the upstream receiving water monitoring station (i.e., background). The CTR provides new information on phenols and the effects they have on human and aquatic health. Based upon the CTR criteria for phenols and phenolic compounds, there is no reasonable potential for the discharge to exceed these limitations; therefore, Effluent Limitations for phenols have been removed from this Order. This change is consistent with the Federal anti-backsliding provisions of 40 CFR 122.44(l)12 and 122.62(a)(16).

Electrical Conductivity (or Specific Conductance)
Electrical conductivity (EC) measures the ability of the water sample to carry an electrical current, a property which is proportional to the concentration of ions in solution. Domestic and industrial uses of water, result in an increase in the mineral content of the wastewater. The salinity of the wastewater is determined by measuring the EC. When salts dissolve in water, ions are formed and the solution will conduct electricity. The EC increases with salinity because of the increasing presence of ions (usually sodium and chlorine ions).

Order No. 97-112 contained Effluent Limitations of 500 µmhos/cm (30-day average) and 1,000 µmhos/cm (daily maximum) for EC. However, the California Department of Health Services (DHS) secondary MCL for EC is 900 µmhos/cm and the agricultural water quality goal is 700 µmhos/cm. The maximum EC of effluent sampled over the previous permit term was 422.7 µmhos/cm and the average specific EC was 66.8 µmhos/cm. These values are below the secondary MCL and the agricultural water quality goal. They also are well below the effluent limitations from the previous Order. The Therefore, no Effluent Limitation for EC is included in this Order. New information regarding the low EC of the effluent, based on more than five years monitoring (daily in most months), along with information regarding appropriate discharge levels for protection of agricultural and municipal beneficial uses justify removal of this effluent limitation. This change is consistent with the Federal anti-backsliding provisions of 40 CFR 122.44(l)12 and 122.62(a)(16).

COOLING WATER CHEMICAL ADDITIVES

Formica, Inc. currently discharges non-contact cooling water to the surface water. Two chemical additives, CHEMTREAT CL-1467 and CHEMTREAT CL-450 (corrosion inhibitors, biocides or anti-scaling agents), are used in the cooling water. These chemicals were present during the characterization of the discharge. The addition of chemicals to the wastestream, or cooling water, would constitute a change in the character of the wastestream and would require submittal of a Report of Waste Discharge with possible modification of this Order.

RECEIVING WATER LIMITATIONS AND MONITORING

Dissolved Oxygen
Potential cold freshwater aquatic habitat is designated as a beneficial use of the Sacramento River between the Colusa Basin Drain and the "I" Street Bridge in Sacramento. For water bodies designated as having cold freshwater aquatic habitat as a beneficial use, the Basin Plan includes a water quality objective of maintaining a minimum of 7.0 mg/L of dissolved oxygen in the Sacramento River. The current permit includes a limitation of 5.0 mg/L for dissolved oxygen. In order to assure attainment of the Basin Plan requirement for the protection of the cold freshwater aquatic habitat beneficial use, this Order contains a new receiving water limitation of 7.0 mg/L for dissolved oxygen applied at SN001.

For surface water bodies outside of the Delta, the Basin Plan requires that "*…the monthly median of the mean daily DO concentration shall not fall below 85 percent of saturation in the main water mass, and the 95 percentile concentration shall not fall below 75 percent of saturation*." This objective is included as a receiving water limitation in the Order.

pH
Order No. 97-112 required that the 30-day average ambient pH of the receiving water should not fall below 6.5 or exceed 8.5, or change by more than 0.5 units. For all surface water bodies in the Sacramento River and San Joaquin River basins, the Basin Plan includes a water quality objective for pH in surface waters, which states: "*The pH shall not be depressed below 6.5 nor raised above 8.5. Changes in normal ambient pH levels shall not exceed 0.5 in fresh water with designated COLD and WARM beneficial uses*."

Temperature
The Basin Plan includes the following objective: "*At no time or place shall the temperature of COLD or WARM intrastate waters be increased more than 5ºF above natural receiving water temperature*." Order No. 97-112 contained a receiving water limitation that required the 30-day ambient water temperature not increase by more than 5°F. The receiving stream at the point of discharge is the headwaters for the unnamed tributary to Pleasant Grove Creek. An upstream sampling point is not available to determine the thermal impacts of the discharge. The discharge flows through open areas, prior to entering downstream waters, and the thermal impacts from any discharges entering the drainage course could mask actual impacts of the discharge on downstream waters. The thermal impacts of the discharge have already been assessed and the proposal to eliminate the discharge is largely based on resolving the elevated temperature issues.

Turbidity
The Basin Plan states that: "*Waters shall be free of changes in turbidity that cause nuisance or adversely effect beneficial uses*." Based on Basin Plan objectives, this Order requires that increases in turbidity attributable to controllable water quality factors not exceed the following:

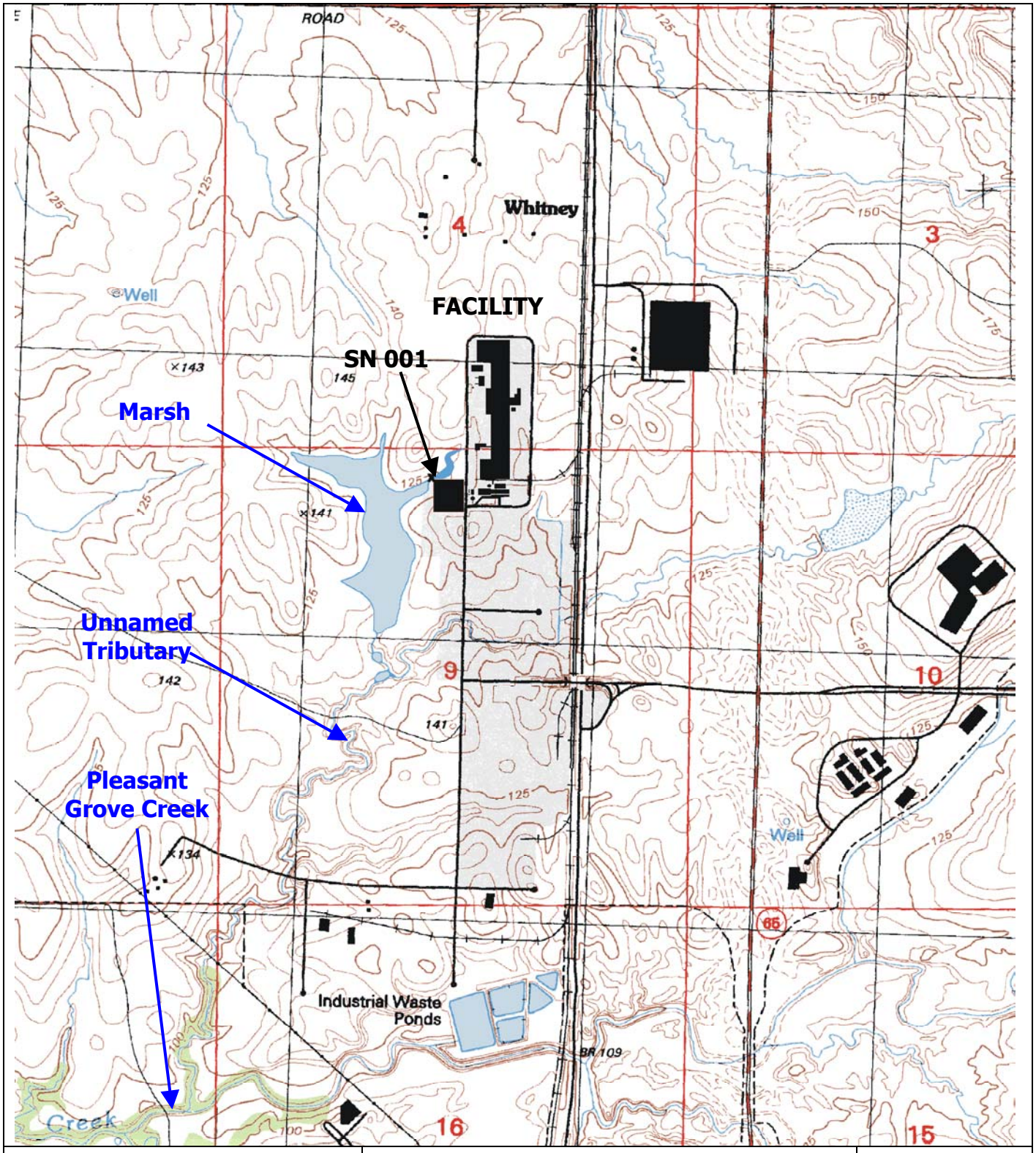
1 Nephelometric Turbidity Unit (NTU) where natural turbidity is between 0 and 5 NTUs
20 percent where natural turbidity is between 5 and 10 NTUs
10 NTUs where natural turbidity is between 50 and 100 NTUs
10 percent where natural turbidity is greater than 100 NTUs

This Order includes receiving water limitations for turbidity based on the water quality objective described in the Basin Plan.

pH, Temperature, and Turbidity Monitoring Requirements
This permit contains Receiving Water Limitations as required to comply with the Basin Plan's water quality objectives. The limitations for temperature, turbidity, and pH require that the discharge not cause the receiving water to change by specified amounts as required in the Receiving Water Limitations section of this Order.

*****

ATTACHMENT A



Drawing Reference:

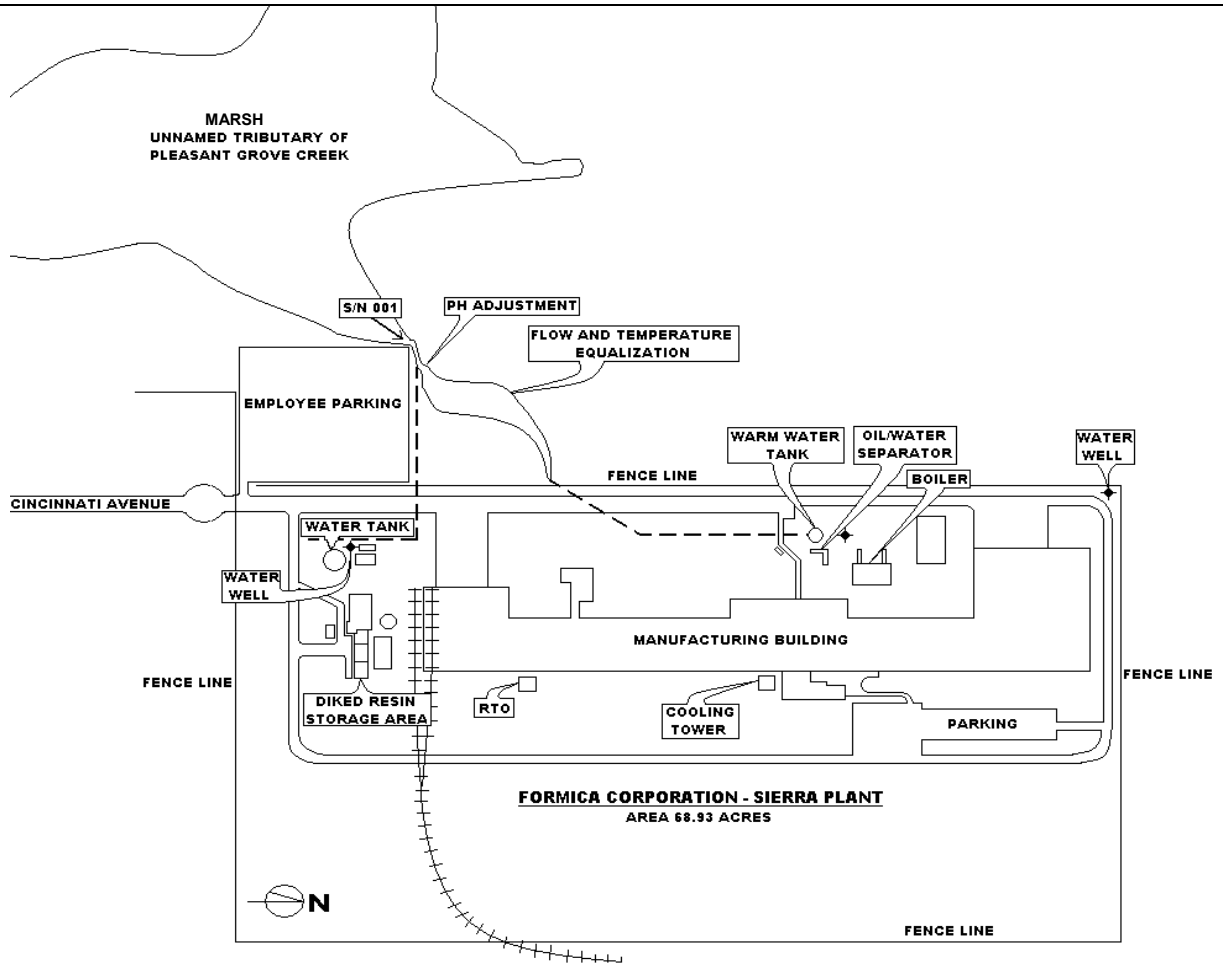
ROSEVILLE, CALIFORNIA
U.S.G.S TOPOGRAPHIC MAPS
7.5 MINUTE QUADRANGLE

SITE LOCATION MAP

FORMICA CORPORATION
SIERRA PLANT
PLACER COUNTY

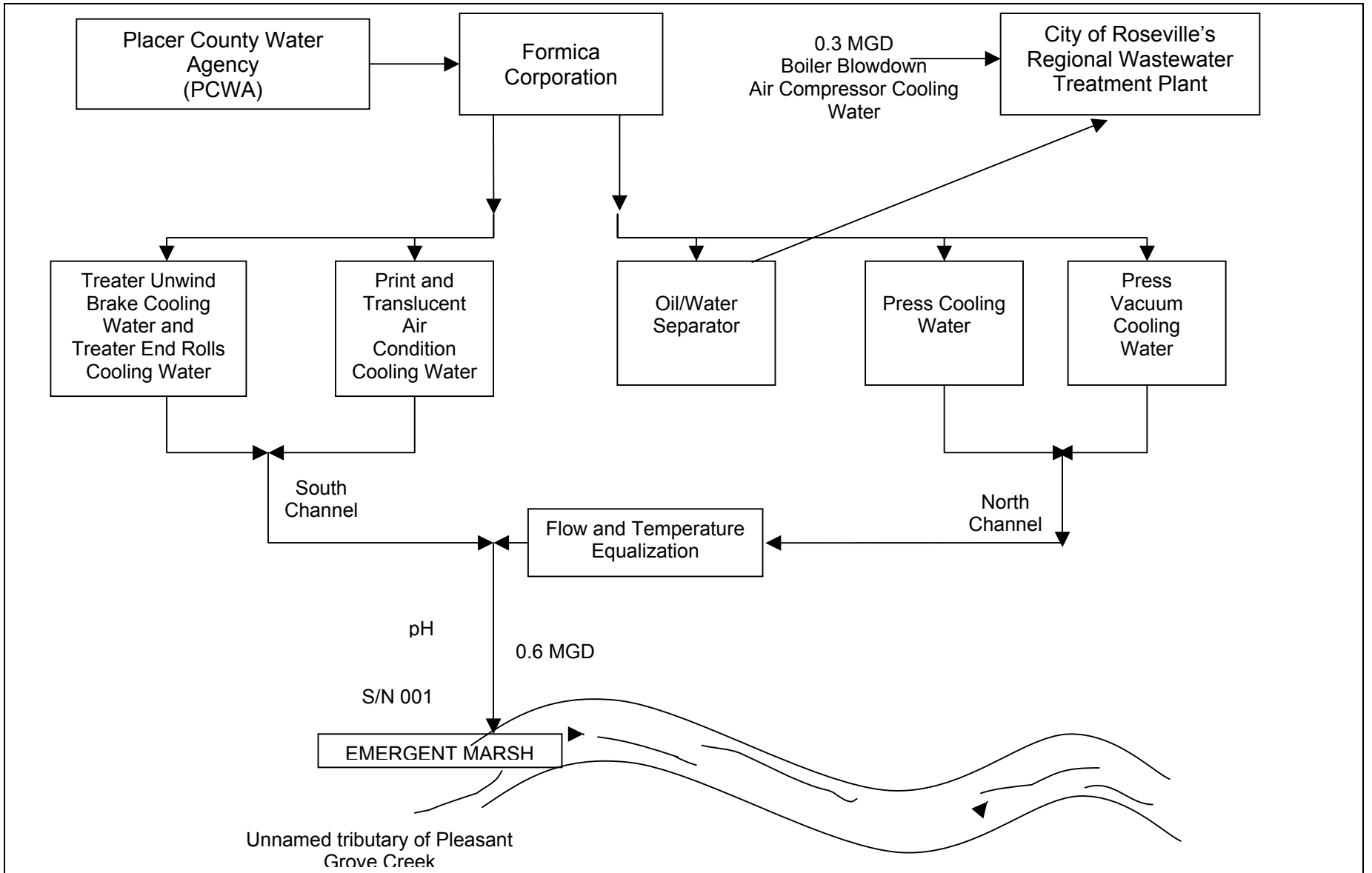
N
W E
S

approx. scale
1 in. = 6000 ft.



ATTACHMENT B – FACILITY DIAGRAM

FORMICA CORPORATION – SIERRA PLANT NPDES NO. CA0004057



ATTACHMENT C – PROCESS FLOW DIAGRAM

FORMICA CORPORATION – SIERRA PLANT NPDES NO. CA0004057

Priority and Other Pollutants - Constituents to be monitored

Attachment D

			Controlling Water Quality Criterion for Surface Waters			
CTR #	**Constituent**	**CAS Number**	**Basis**	**Criterion Concentration (ug/L or noted) (1)**	**Criterion Quantitation Limit (ug/L or noted)**	**Suggested Test Methods**
VOLATILE ORGANICS						
28	1,1-Dichloroethane	75343	Primary MCL	5	0.5	EPA 8260B
30	1,1-Dichloroethene	75354	National Toxics Rule	0.057	0.5	EPA 8260B
41	1,1,1-Trichloroethane	71556	Primary MCL	200	0.5	EPA 8260B
42	1,1,2-Trichloroethane	79005	National Toxics Rule	0.6	0.5	EPA 8260B
37	1,1,2,2-Tetrachloroethane	79345	National Toxics Rule	0.17	0.5	EPA 8260B
75	1,2-Dichlorobenzene	95501	Taste & Odor	10	0.5	EPA 8260B
29	1,2-Dichloroethane	107062	National Toxics Rule	0.38	0.5	EPA 8260B
	cis-1,2-Dichloroethene	156592	Primary MCL	6	0.5	EPA 8260B
31	1,2-Dichloropropane	78875	Calif. Toxics Rule	0.52	0.5	EPA 8260B
101	1,2,4-Trichlorobenzene	120821	Public Health Goal	5	0.5	EPA 8260B
76	1,3-Dichlorobenzene	541731	Taste & Odor	10	0.5	EPA 8260B
32	1,3-Dichloropropene	542756	Primary MCL	0.5	0.5	EPA 8260B
77	1,4-Dichlorobenzene	106467	Primary MCL	5	0.5	EPA 8260B
17	Acrolein	107028	Aquatic Toxicity	21	2	EPA 8260B
18	Acrylonitrile	107131	National Toxics Rule	0.059	2	EPA 8260B
19	Benzene	71432	Primary MCL	1	0.5	EPA 8260B
20	Bromoform	75252	Calif. Toxics Rule	4.3	0.5	EPA 8260B
34	Bromomethane	74839	Calif. Toxics Rule	48	1	EPA 8260B
21	Carbon tetrachloride	56235	National Toxics Rule	0.25	0.5	EPA 8260B
22	Chlorobenzene (mono chlorobenzene)	108907	Taste & Odor	50	0.5	EPA 8260B
24	Chloroethane	75003	Taste & Odor	16	0.5	EPA 8260B
25	2- Chloroethyl vinyl ether	110758	Aquatic Toxicity	122 (3)	1	EPA 8260B
26	Chloroform	67663	OEHHA Cancer Risk	1.1	0.5	EPA 8260B
35	Chloromethane	74873	USEPA Health Advisory	3	0.5	EPA 8260B
23	Dibromochloromethane	124481	Calif. Toxics Rule	0.41	0.5	EPA 8260B
27	Dichlorobromomethane	75274	Calif. Toxics Rule	0.56	0.5	EPA 8260B
36	Dichloromethane	75092	Calif. Toxics Rule	4.7	0.5	EPA 8260B
33	Ethylbenzene	100414	Taste & Odor	29	0.5	EPA 8260B
88	Hexachlorobenzene	118741	Calif. Toxics Rule	0.00075	1	EPA 8260B
89	Hexachlorobutadiene	87683	National Toxics Rule	0.44	1	EPA 8260B
91	Hexachloroethane	67721	National Toxics Rule	1.9	1	EPA 8260B
94	Naphthalene	91203	USEPA IRIS	14	10	EPA 8260B
38	Tetrachloroethene	127184	National Toxics Rule	0.8	0.5	EPA 8260B
39	Toluene	108883	Taste & Odor	42	0.5	EPA 8260B
40	trans-1,2-Dichloroethylene	156605	Primary MCL	10	0.5	EPA 8260B
43	Trichloroethene	79016	National Toxics Rule	2.7	0.5	EPA 8260B
44	Vinyl chloride	75014	Primary MCL	0.5	0.5	EPA 8260B
	Methyl-tert-butyl ether (MTBE)	1634044	Secondary MCL	5	0.5	EPA 8260B
	Trichlorofluoromethane	75694	Primary MCL	150	5	EPA 8260B
	1,1,2-Trichloro-1,2,2-Trifluoroethane	76131	Primary MCL	1200	10	EPA 8260B
	Styrene	100425	Taste & Odor	11	0.5	EPA 8260B
	Xylenes	1330207	Taste & Odor	17	0.5	EPA 8260B

			Controlling Water Quality Criterion for Surface Waters			
CTR #	Constituent	CAS Number	Basis	Criterion Concentration (ug/L or noted) (1)	Criterion Quantitation Limit (ug/L or noted)	Suggested Test Methods
SEMI-VOLATILE ORGANICS						
60	1,2-Benzanthracene	56553	Calif. Toxics Rule	0.0044	5	EPA 8270C
85	1,2-Diphenylhydrazine	122667	National Toxics Rule	0.04	1	EPA 8270C
45	2-Chlorophenol	95578	Taste and Odor	0.1	2	EPA 8270C
46	2,4-Dichlorophenol	120832	Taste and Odor	0.3	1	EPA 8270C
47	2,4-Dimethylphenol	105679	Calif. Toxics Rule	540	2	EPA 8270C
49	2,4-Dinitrophenol	51285	National Toxics Rule	70	5	EPA 8270C
82	2,4-Dinitrotoluene	121142	National Toxics Rule	0.11	5	EPA 8270C
55	2,4,6-Trichlorophenol	88062	Taste and Odor	2	10	EPA 8270C
83	2,6-Dinitrotoluene	606202	USEPA IRIS	0.05	5	EPA 8270C
50	2-Nitrophenol	25154557	Aquatic Toxicity	150 (5)	10	EPA 8270C
71	2-Chloronaphthalene	91587	Aquatic Toxicity	1600 (6)	10	EPA 8270C
78	3,3'-Dichlorobenzidine	91941	National Toxics Rule	0.04	5	EPA 8270C
62	3,4-Benzofluoranthene	205992	Calif. Toxics Rule	0.0044	10	EPA 8270C
52	4-Chloro-3-methylphenol	59507	Aquatic Toxicity	30	5	EPA 8270C
48	4,6-Dinitro-2-methylphenol	534521	National Toxics Rule	13.4	10	EPA 8270C
51	4-Nitrophenol	100027	USEPA Health Advisory	60	5	EPA 8270C
69	4-Bromophenyl phenyl ether	101553	Aquatic Toxicity	122	10	EPA 8270C
72	4-Chlorophenyl phenyl ether	7005723	Aquatic Toxicity	122 (3)	5	EPA 8270C
56	Acenaphthene	83329	Taste and Odor	20	1	EPA 8270C
57	Acenaphthylene	208968	No Criteria Available		10	EPA 8270C
58	Anthracene	120127	Calif. Toxics Rule	9,600	10	EPA 8270C
59	Benzidine	92875	National Toxics Rule	0.00012	5	EPA 8270C
61	Benzo(a)pyrene (3,4-Benzopyrene)	50328	Calif. Toxics Rule	0.0044	0.1	EPA 8270C
63	Benzo(g,h,i)perylene	191242	No Criteria Available		5	EPA 8270C
64	Benzo(k)fluoranthene	207089	Calif. Toxics Rule	0.0044	2	EPA 8270C
65	Bis(2-chloroethoxy) methane	111911	No Criteria Available		5	EPA 8270C
66	Bis(2-chloroethyl) ether	111444	National Toxics Rule	0.031	1	EPA 8270C
67	Bis(2-chloroisopropyl) ether	39638329	Aquatic Toxicity	122 (3)	10	EPA 8270C
68	Bis(2-ethylhexyl) phthalate	117817	National Toxics Rule	1.8	3	EPA 8270C
70	Butyl benzyl phthalate	85687	Aquatic Toxicity	3 (7)	10	EPA 8270C
73	Chrysene	218019	Calif. Toxics Rule	0.0044	5	EPA 8270C
81	Di-n-butylphthalate	84742	Aquatic Toxicity	3 (7)	10	EPA 8270C
84	Di-n-octylphthalate	117840	Aquatic Toxicity	3 (7)	10	EPA 8270C
74	Dibenzo(a,h)-anthracene	53703	Calif. Toxics Rule	0.0044	0.1	EPA 8270C
79	Diethyl phthalate	84662	Aquatic Toxicity	3 (7)	2	EPA 8270C
80	Dimethyl phthalate	131113	Aquatic Toxicity	3 (7)	2	EPA 8270C
86	Fluoranthene	206440	Calif. Toxics Rule	300	10	EPA 8270C
87	Fluorene	86737	Calif. Toxics Rule	1300	10	EPA 8270C
90	Hexachlorocyclopentadiene	77474	Taste and Odor	1	1	EPA 8270C
92	Indeno(1,2,3-c,d)pyrene	193395	Calif. Toxics Rule	0.0044	0.05	EPA 8270C
93	Isophorone	78591	National Toxics Rule	8.4	1	EPA 8270C
98	N-Nitrosodiphenylamine	86306	National Toxics Rule	5	1	EPA 8270C
96	N-Nitrosodimethylamine	62759	National Toxics Rule	0.00069	5	EPA 8270C
97	N-Nitrosodi-n-propylamine	621647	Calif. Toxics Rule	0.005	5	EPA 8270C
95	Nitrobenzene	98953	National Toxics Rule	17	10	EPA 8270C
53	Pentachlorophenol	87865	Calif. Toxics Rule	0.28	0.2	EPA 8270C
99	Phenanthrene	85018	No Criteria Available		5	EPA 8270C
54	Phenol	108952	Taste and Odor	5	1	EPA 8270C
100	Pyrene	129000	Calif. Toxics Rule	960	10	EPA 8270C

			Controlling Water Quality Criterion for Surface Waters			
CTR #	Constituent	CAS Number	Basis	Criterion Concentration (ug/L or noted) (1)	Criterion Quantitation Limit (ug/L or noted)	Suggested Test Methods
INORGANICS						
	Aluminum	7429905	Ambient Water Quality	87	50	EPA 6020/200.8
1	Antimony	7440360	Primary MCL	6	5	EPA 6020/200.8
2	Arsenic	7440382	Ambient Water Quality	0.018	0.01	EPA 1632
15	Asbestos	1332214	National Toxics Rule/ Primary MCL	7 MFL	0.2 MFL >10um	EPA/600/R-93/116(PCM)
	Barium	7440393	Basin Plan Objective	100	100	EPA 6020/200.8
3	Beryllium	7440417	Primary MCL	4	1	EPA 6020/200.8
4	Cadmium	7440439	Public Health Goal	0.07	0.25	EPA 1638/200.8
5a	Chromium (total)	7440473	Primary MCL	50	2	EPA 6020/200.8
5b	Chromium (VI)	18540299	Public Health Goal	0.2	0.5	EPA 7199/ 1636
6	Copper	7440508	National Toxics Rule	4.1 (2)	0.5	EPA 6020/200.8
14	Cyanide	57125	National Toxics Rule	5.2	5	EPA 9012A
	Fluoride	7782414	Public Health Goal	1000	0.1	EPA 300
	Iron	7439896	Secondary MCL	300	100	EPA 6020/200.8
7	Lead	7439921	Calif. Toxics Rule	0.92 (2)	0.5	EPA 1638
8	Mercury	7439976	TMDL Development		0.0002 (11)	EPA 1669/1631
	Manganese	7439965	Secondary MCL/ Basin Plan Objective	50	20	EPA 6020/200.8
9	Nickel	7440020	Calif. Toxics Rule	24 (2)	5	EPA 6020/200.8
10	Selenium	7782492	Calif. Toxics Rule	5 (8)	5	EPA 6020/200.8
11	Silver	7440224	Calif. Toxics Rule	0.71 (2)	1	EPA 6020/200.8
12	Thallium	7440280	National Toxics Rule	1.7	1	EPA 6020/200.8
	Tributyltin	688733	Ambient Water Quality	0.063	0.002	EV-024/025
13	Zinc	7440666	Calif. Toxics Rule/ Basin Plan Objective	54/ 16 (2)	10	EPA 6020/200.8
PESTICIDES - PCBs						
110	4,4'-DDD	72548	Calif. Toxics Rule	0.00083	0.02	EPA 8081A
109	4,4'-DDE	72559	Calif. Toxics Rule	0.00059	0.01	EPA 8081A
108	4,4'-DDT	50293	Calif. Toxics Rule	0.00059	0.01	EPA 8081A
112	alpha-Endosulfan	959988	National Toxics Rule	0.056 (9)	0.02	EPA 8081A
103	alpha-Hexachlorocyclohexane (BHC)	319846	Calif. Toxics Rule	0.0039	0.01	EPA 8081A
	Alachlor	15972608	Primary MCL	2	1	EPA 8081A
102	Aldrin	309002	Calif. Toxics Rule	0.00013	0.005	EPA 8081A
113	beta-Endosulfan	33213659	Calif. Toxics Rule	0.056 (9)	0.01	EPA 8081A
104	beta-Hexachlorocyclohexane	319857	Calif. Toxics Rule	0.014	0.005	EPA 8081A
107	Chlordane	57749	Calif. Toxics Rule	0.00057	0.1	EPA 8081A
106	delta-Hexachlorocyclohexane	319868	No Criteria Available		0.005	EPA 8081A
111	Dieldrin	60571	Calif. Toxics Rule	0.00014	0.01	EPA 8081A
114	Endosulfan sulfate	1031078	Ambient Water Quality	0.056	0.05	EPA 8081A
115	Endrin	72208	Calif. Toxics Rule	0.036	0.01	EPA 8081A
116	Endrin Aldehyde	7421934	Calif. Toxics Rule	0.76	0.01	EPA 8081A
117	Heptachlor	76448	Calif. Toxics Rule	0.00021	0.01	EPA 8081A
118	Heptachlor Epoxide	1024573	Calif. Toxics Rule	0.0001	0.01	EPA 8081A
105	Lindane (gamma-Hexachlorocyclohexane)	58899	Calif. Toxics Rule	0.019	0.019	EPA 8081A
119	PCB-1016	12674112	Calif. Toxics Rule	0.00017 (10)	0.5	EPA 8082
120	PCB-1221	11104282	Calif. Toxics Rule	0.00017 (10)	0.5	EPA 8082
121	PCB-1232	11141165	Calif. Toxics Rule	0.00017 (10)	0.5	EPA 8082
122	PCB-1242	53469219	Calif. Toxics Rule	0.00017 (10)	0.5	EPA 8082

NPDES Monitoring Requirement

			Controlling Water Quality Criterion for Surface Waters			
CTR #	Constituent	CAS Number	Basis	Criterion Concentration (ug/L or noted) (1)	Criterion Quantitation Limit (ug/L or noted)	Suggested Test Methods
123	PCB-1248	12672296	Calif. Toxics Rule	0.00017 (10)	0.5	EPA 8082
124	PCB-1254	11097691	Calif. Toxics Rule	0.00017 (10)	0.5	EPA 8082
125	PCB-1260	11096825	Calif. Toxics Rule	0.00017 (10)	0.5	EPA 8082
126	Toxaphene	8001352	Calif. Toxics Rule	0.0002	0.5	EPA 8081A
	Atrazine	1912249	Public Health Goal	0.15	1	EPA 8141A
	Bentazon	25057890	Primary MCL	18	2	EPA 643/ 515.2
	Carbofuran	1563662	CDFG Hazard Assess.	0.5	5	EPA 8318
	2,4-D	94757	Primary MCL	70	10	EPA 8151A
	Dalapon	75990	Ambient Water Quality	110	10	EPA 8151A
	1,2-Dibromo-3-chloropropane (DBCP)	96128	Public Health Goal	0.0017	0.01	EPA 8260B
	Di(2-ethylhexyl)adipate	103231	USEPA IRIS	30	5	EPA 8270C
	Dinoseb	88857	Primary MCL	7	2	EPA 8151A
	Diquat	85007	Ambient Water Quality	0.5	4	EPA 8340/ 549.1/HPLC
	Endothal	145733	Primary MCL	100	45	EPA 548.1
	Ethylene Dibromide	106934	OEHHA Cancer Risk	0.0097	0.02	EPA 8260B/ 504
	Glyphosate	1071836	Primary MCL	700	25	HPLC/ EPA 547
	Methoxychlor	72435	Public Health Goal	30	10	EPA 8081A
	Molinate (Ordram)	2212671	CDFG Hazard Assess.	13	2	EPA 634
	Oxamyl	23135220	Public Health Goal	50	20	EPA 8318/ 632
	Picloram	1918021	Primary MCL	500	1	EPA 8151A
	Simazine (Princep)	122349	USEPA IRIS	3.4	1	EPA 8141A
	Thiobencarb	28249776	Basin Plan Objective/ Secondary MCL	1	1	HPLC/ EPA 639
16	2,3,7,8-TCDD (Dioxin)	1746016	Calif. Toxics Rule	1.30E-08	5.00E-06	EPA 8290 (HRGC) MS
	2,4,5-TP (Silvex)	93765	Ambient Water Quality	10	1	EPA 8151A
	Diazinon	333415	CDFG Hazard Assess.	0.05	0.25	EPA 8141A/ GCMS
	Chlorpyrifos	2921882	CDFG Hazard Assess.	0.014	1	EPA 8141A/ GCMS

			Controlling Water Quality Criterion for Surface Waters			
CTR #	Constituent	CAS Number	Basis	Criterion Concentration (ug/L or noted) (1)	Criterion Quantitation Limit (ug/L or noted)	Suggested Test Methods
OTHER CONSTITUENTS						
	Ammonia (as N)	7664417	Ambient Water Quality	1500 (4)		EPA 350.1
	Chloride	16887006	Agricultural Use	106,000		EPA 300.0
	Flow			1 CFS		
	Hardness (as $CaCO_3$)			5000		EPA 130.2
	Foaming Agents (MBAS)		Secondary MCL	500		SM5540C
	Nitrate (as N)	14797558	Primary MCL	10,000	2,000	EPA 300.0
	Nitrite (as N)	14797650	Primary MCL	1000	400	EPA 300.0
	pH		Basin Plan Objective	6.5-8.5	0.1	EPA 150.1
	Phosphorus, Total (as P)	7723140	USEPA IRIS	0.14		EPA 365.3
	Specific conductance (EC)		Agricultural Use	700 umhos/cm		EPA 120.1
	Sulfate		Secondary MCL	250,000	500	EPA 300.0
	Sulfide (as S)		Taste and Odor	0.029		EPA 376.2
	Sulfite (as SO_3)		No Criteria Available			SM4500-SO3
	Temperature		Basin Plan Objective	^{o}F		
	Total Disolved Solids (TDS)		Agricultural Use	450,000		EPA 160.1

FOOTNOTES:

(1) - The Criterion Concentrations serve only as a point of reference for the selection of the appropriate analytical method. They do not indicate a regulatory decision that the cited concentration is either necessary or sufficient for full protection of beneficial uses. Available technology may require that effluent limits be set lower than these values.
(2) - Freshwater aquatic life criteria for metals are expressed as a function of total hardness (mg/L) in the water body. Values displayed correspond to a total hardness of 40 mg/L.
(3) - For haloethers
(4) - Freshwater aquatic life criteria for ammonia are expressed as a function of pH and temperature of the water body. Values displayed correspond to pH 8.0 and temperature of 22 C.
(5) - For nitrophenols.
(6) - For chlorinated naphthalenes.
(7) - For phthalate esters.
(8) - Basin Plan objective = 2 ug/L for Salt Slough and specific constructed channels in the Grassland watershed.
(9) - Criteria for sum of alpha- and beta- forms.
(10) - Criteria for sum of all PCBs.
(11) - Mercury monitoring shall utilize "ultra-clean" sampling and analytical methods. These methods include: Method 1669: Sampling Ambient Water for Trace Metals at EPA Water Quality Criteria Levels, US EPA; and Method 1631: Mercury in Water by Oxidation, Purge and Trap, and Cold Vapor Atomic Fluoresence, US EPA